The magazine for AUSTRALIAN Amateurs

February 2003
Volume 71 No 2

Amateur Radio

$ 5.95

4 Special 'antenna' articles

My New Beam for DX on Two

ANTENNÆ: your make or break point

The
VERSATENNA
A traveller's antenna for VHF and UHF

ISSN 0002-6859

Six Metre Half Wave Vertical Using a CB Whip

An Experimental **Patch Antenna** for 70 cm

Measuring echoes and propagation on the HF bands – Pt 2

Callbook 2003

TWO FOR THE PRICE OF ONE.

This year we are offering the full Callbook/Handbook as a handsome
BOUND COPY
that would grace any shack or bookcase **AND** as a
FULLY SEARCHABLE DISC

Both publications contain all Australian callsigns by callsign order in easy-read format and about 60 pages all about beacons, packets, rules and regulations, repeaters, frequencies and bands and much other useful information all in one convenient unit.

And as a special bonus on the disc alone, Greater Circle information.

ABOUT SEARCHING ON THE DISC

The material in the disc is distilled into Acrobat files. Which means that any word in the disc can be found by using the Acrobat Reader's >SEARCH>.
Example. Say you wanted to know who in your area had an amateur callsign/licence.
Easy — put in your postcode, do a search and there are your choices. (we have included Acrobat Reader)

And about that two for the price of one offer.

WIA, through its Divisions and other outlets is making the set, full book and even fuller disc, available for a delivered price that compares extremely favourably with the 2001 price of the book alone.

Contact your division to place your order now. Details on page 16.

Amateur Radio

The Journal of the Wireless Institute of Australia

ISSN 0002-6859

Volume 71
Number 2
February 2003

Editorial

Editor: Colwyn Low VK5UE
edarmag@chariot.net.au

Technical Editor: Peter Gibson VK3AZL

Publications Committee Members

Ron Fisher VK3OM
Don Jackson VK3DBB
Evan Jarman VK3ANI
Bill Rice VK3ABP
Gil Sones VK3AUI
Bill Roper VK3BR

Advertising

Mrs June Fox,
Tel: (03) 9528 5962

Hamads

"Hamads" *Newsletters Unlimited*
PO Box 431, Monbulk Vic 3793
Fax: 03 9756 7031

e-mail: *newsletters@ozemail.com.au*

Office

10/229 Balaclava Road
Caulfield, Victoria
Telephone (03) 9528 5962
Facsimile (03) 9523 8191

Business Hours 9:30am to 3:00pm weekdays

Postal

The Editor AR
34 Hawker Crescent
Elizabeth East
South Australia 5112
Email edarmag@chariot.net.au

Production

Newsletters Unlimited 03 9756 7797

Printer

Streamline Press, Melbourne (03) 9417 2766

Postal Service

IMS (03) 9291 5888

Production Deadlines

Advertising booking and articles for publication 10th of preceding month.

Hamads and advertising material deadline 18th day of preceding month

The contents of Amateur Radio are Copyright Wireless Institute of Australia © 2002

Our Cover this month

This month we are featuring antennae. The montage shows some of the antennae described in the articles

General

Revised Regulations for the Amateur Service 3
Jim Linton VK3PC
UK Foundation Licence one year on 3
David A. Pilley VK2AYD
Book Review: *Foundation Licence Now!* by Alan Betts G0HIQ 17
Peter Kloppenburg VK1CPK
ARDF Championships 21
The 2002 Amateur Radio Index 30
Gridsquare League Table 37
Guy VK2KU

Technical

An experimental patch antenna for 70 cm 4
Greg Chenco VK3BLG
Six metre half wave vertical using a CB whip 6
Peter Cosway VK3DU
Measuring echoes and propagation on the HF bands Part 2 9
H. de Waard (PA0ZX) and J.G.C. Niehaus (PA0FA)
The Versatenna. A traveller's antenna for VHF and UHF 13
Peter Parker VK3YE
My new beam for DX on two 19
W.M. (Bill) Sinclair VK2ZCV
RS 20 Power Supply . Errata and Notes 21
Jim Tregellas VK5JST
Common Faults and Cures (Technical Abstracts) 26
Gil Sones VK3AUI
GW4ZXG Remote Tuner (Technical Abstracts) 30
Gil Sones VK3AUI
Quiet Antenna Tuner (Technical Abstracts) 31
Gil Sones VK3AUI
M0BMU LF Loop (Technical Abstracts) 28
Gil Sones VK3AUI

Columns

Advertisers' Index 63
ALARA 22
AMSAT 42
Beyond Our Shores 24
Book Review 17
Contests 49
Club News 23
WIA Division News
VK1 Notes 38
VK2 Notes 38
VK3 Notes 39
VK4 Notes 40
VK5 Notes 41
VK6 Notes 41
VK7 Notes 41
DXCC Standings 48
Editor's Comment 2
Education Notes 25
Hamads 62
Ham Shack Computers 54
HF Predictions 56
How's DX? 45
Over to you 6, 60, 61
QSL page 32
Spotlight on SWLing 15
Sunspots 33
Technical Abstracts 26
VHF/UHF – An Expanding World 58
WIA News 3
WIA Division Directory 64
WIA Federal Directory 2
Will's Page 60

Contributions to Amateur Radio

Amateur Radio is a forum for WIA members' amateur radio experiments, experiences opinions and news. Manuscripts with drawings and or photos are always welcome and will be considered for publication. Articles on disc or email are especially welcome. The WIA cannot be responsible for loss or damage to any material. A pamphlet, How to write for Amateur Radio is available from the Federal Office on receipt of a stamped self-addressed envelope.

Back Issues

Back issues are available directly from the WIA Federal Office (until stocks are exhausted), at $4.00 each (including postage within Australia) to members.

Photostat copies

When back issues are no longer available, photocopies of articles are available to members at $2.50 each (plus an additional $2 for each additional issue in which the article appears).

Disclaimer

The opinions expressed in this publication do not necessarily reflect the official view of the WIA and the WIA cannot be held responsible for incorrect information published.

Amateur Radio Service

A radiocommunication service for the purpose of self-training, intercommunication and technical investigation carried out by amateurs; that is, by duly authorised persons interested in radio technique solely with a personal aim and without pecuniary interest.

Wireless Institute of Australia

The world's first and oldest
National Radio Society
Founded 1910

Representing
The Australian Amateur Radio Service

Member of the
International Amateur Radio Union

Registered Federal Office of the WIA
10/229 Balaclava Road
Caulfield North Vic 3161
Tel: (03) 9528 5962 Fax (03) 9523 8191
http://www.wia.org.au

All mail to
PO Box 2175 Caulfield Junction VIC 3161

Business hours: 9.30am-3pm weekdays

Federal Secretary
Peter Naish VK2BPN

Federal Office staff
June Fox Bookkeeper
Rita Trebilco VK3IF Examinations Officer

Council

President	Ernest Hocking	VK1LK
VK1 Federal Councillor	Gilbert Hughes	VK1GH
VK2 Federal Councillor	Terry Davies	VK2KDK
VK3 Federal Councillor	Jim Linton	VK3PC
VK4 Federal Councillor	David Jones	VK4OF
VK5 Federal Councillor	David Box	VK5OV
VK6 Federal Councillor	Will McGhie	VK6UU
VK7 Federal Councillor	Phil Corby	VK7ZAX

Executive

Brenda Edmonds	VK3KT
David Pilley	VK2AYD
Don Wilschefski	VK4BY

Federal Coordinators

AMSAT	Graham Ratcliff	VK5AGR
ARDF	Jack Bramham	VK3WWW
Awards	Mal Johnson	VK6LC
Contests	Ian Godsil	VK3VP
Education	Ron Smith	VK4AGS
FTAC	John Martin	VK3KWA
Historian	John Edmonds	VK3AFU
IARU	Neil Penfold	VK6NE
Intruder Watch	Harry Andersson	VK8HA
International Travel Host	John Miller	VK3DJM
ITU Conference and study group	Gilbert Hughes	VK1GH
QSL Manager (VK8, VK0)	Neil Penfold	VK6NE
Videotapes	VK2 Division	
Web	Joe Burford	VK5UJ
WICEN	John Weir	VK3ZRV

ACA Liaison Team

Glen Dunstan VK4DU (Corresponding)
Gilbert Hughes VK1GH
Keith Malcolm VK1ZKM
Peter Naish VK2BPN

Editorial Comment

Colwyn Low VK5UE

2003's smoky beginning

New Years greeting to all members and readers

2003 has started with considerable hurt and anguish. WICEN will have had a part to play in supporting emergency services in some states. I have found my self thinking about how prepared I really am to support a WICEN call out in VK5. It is the back up things that at times get forgotten like the second and third battery needed to keep your station on the air for 3 or 4 or 5 hours without the chance to recharge them. My solar cell panel is great in the sun but will it do anything under a thick smoke cloud? I also have a feeling I do not want to be too close to a runaway wind generator in a gale.

I did a little practice for this in the Summer VHF/UHF Field Day and made some 20 contacts in three hours. The site was near one of the electricity grid switching stations and at times the noise levels on 146, 436 and 1298 MHz overrode all signals. However I persevered, maybe I should have moved, but I am a bit stubborn at times.

The WIA Federal Convention and WIA AGM are being held in Adelaide the first weekend in April this year. Among the topics for discussion is the possibility of a new Australian Licence similar to the UK Foundation Licence. There are many views on this and several views are published in this issue. So I feel it is necessary to point out how the WIA deals with its business. (1) Each member of the WIA is first a member of a state division. The state division is the first place a member should go with ideas, views, opinions etc on how the WIA operates or should change. (2) The state divisions are the members of the Federal WIA and they each appoint Federal Councilors and assistant or proxy councilors that attend to the WIA Federal business and take the state divisional views and instructions to the Federal meetings.

It is therefore necessary to collect members views before the convention / AGM so that each Federal Councilor has knowledge of the views of those they represent. This is why I feel it is necessary to publish different views and opinions in AR on topics, which concern members. AR is a WIA member's journal for sharing views and opinions, for keeping in touch and for providing some technical education and advice. The Editor is the person who selects the material for publication (So now you know a little of what guides my decisions). This is one of the reasons for airing views on the UK Foundation Licence.

There are no President's notes this month as the President has been caught up in the aftermath of the Canberra bush fires.

This month we include the annual index. I hope the topics choosen for each section are sufficient for readers needs.

Finally I realise I have featured VHF and UHF aerials and when I got to the Grid Square league I had a thought that there were few if any VK5s. Sure enough I did not find any. I then wondered if this was a geographical thing but then realised that Adelaide is not all of South Australia. maybe we in VK5 have just not got round to making application.

I had a letter today from an amateur with young children who are taught by the School of the Air. He informed me that School of the Air will in future be School of the Internet. This is another case of moving with the most appropriate technology available. Once every isolated family has a satellite phone and a computer it is really quite easy. In the nearer country schools in SA "Distance education" has been used for over a decade now.

73 Colwyn VK5UE

Revised regulations for the Amateur Service

By Jim Linton VK3PC

The Australian Communications Authority (ACA) has revised and updated the Licence Condition Determinations (LCDs), or regulations, for amateur stations.

In a welcome move, the restrictions on the six metre band for those in Tasmania have been eased. In fact, two areas - Tasmania and the Commonwealth Territory at Jervis Bay - are removed from the TV Channel 0 restriction zone.

This means that radio amateurs in those areas now have 400 W, all mode 50-54 MHz privileges as exist in VK5/6/8/9/0. The rest of Australia (VK1/2/3/4) may have to wait until after the closure of analogue television in 2008, before it has access to the full six metre band.

The ACA has included a new clause 39A in the LCDs, which basically means that the interference class licensed Low Interference Potential Devices, or LIPDs, cause to amateur repeaters is deemed to be non-existent.

This is a way of exempting 434 MHz LIPDs from the "no interference" condition of the LIPD class licence. Since this clause will be part of the licence conditions of amateur repeaters, it amounts to a legal waiver, which requires repeater licensees to accept LIPD interference and absolves ACA of any obligation to act on interference complaints.

It is important to note that clause 39A only applies to LIPDs on 434 MHz. The Amateur Service still has full interference protection from LIPDs operating in any other bands.

In a fully expected change, no operation below 430MHz is permitted within a 250 km radius of Perth. In anticipation of that change, the WIA amateur band plan was amended for all of Western Australia some months ago.

Similar arrangements for below 430MHz will apply ultimately throughout VK2 and VK3. The scope of these arrangements will not be known until emergency services in VK2 brief the WIA on their intentions for use of the band or parts of the band.

In another clause of the LCDs, the so-called "Novice filter" restriction appears that prohibits crossband or linked repeaters from retransmitting signals from their users on a frequency that the user is not permitted to use - for example a Novice using a 2-metre repeater that has a link to 6-metres.

This basically makes repeater licensees legally responsible for the actions of the people who use their repeaters. Hence the need for access control such as CTCSS, forcing all users to generate tone to use cross-band facilities in accordance with their licence conditions.

And how does this "Novice filter" restriction apply to Amateur Internet Linked Systems such as IRLP? The WIA is still seeking clarifications from the ACA on that matter.

The full LCDs can be read at http://www.sma.gov.au/legal/determin/lcd/amateur.htm

ar

UK Foundation Licence one year on

David A. Pilley VK2AYD

In February 2002 I wrote about the new revolutionary Foundation Licence introduced in the U.K. We have watched the progress carefully and recently, whilst in the U.K., I had the opportunity to meet with President Bob Whelan, G3PJT, and General Manager Peter Kirby G0TWW, of the Radio Society of Great Britain and discuss the development over the past year and what changes if any they are considering this year.

History

Over the years various types of licences, such as Novice, Tech VHF, etc., have been introduced in the U.K. in the hope it would stimulate interest and provide a class of licence to suit the neeeds of the experimenter. However the number of people taking the radio examinations has fallen by 90% over the past ten years. It was percieved the entry barriers to Amateur Radio was too high and notably that it could take 9 months from the beginning study to passing the necessary examination. Morse was typically the down side and felt to be irrevelant.

The Government in the U.K. was also concerned with the declining interest in R.F. technology, both at the class room level and professional level and realised the valuable contribution that radio amateur makes to the economy.

It was time the hobby was brought into the 21st Century.

Objective

The R.S.G.B. in co-operation with the Radio Authority in the U.K. set two objectives:

(a) To develop a shared vision of the structure of amateur radio licencing after WRC 2003 when the requirement for Morse would hopefully be removed, and

(b) To see how, within this new structure, a simple-to-obtain

Continued on page 12

An experimental patch antenna for 70 cm

Greg Chenco VK3BLG

Twelve months ago, after about an 18-year absence from amateur radio, I decided to fire up my old IC22A on 2 metres and build some antennas. I was fortunate enough to be introduced to the 2100 net by Ken, VK3HKR and I found that the net was a very interesting forum which discussed anything from painting to heavy technical discussions on how a discone worked.

One of the regular topics of discussion was working satellites. I realised at this point if I was to be able to join in with these activities, I needed to upgrade my equipment. So I lashed out and bought second-hand IC271A and IC471A all mode transceivers.

After building up various antennas and achieving some limited success working UO14, FO20 and FO29 I came to the conclusion that to operate with these birds, especially FO20 and FO29, you really needed some sort of tracking equipment. As my Emotator Rotator was in bits (having pulled it apart 18 years ago to replace a pot) and also my QTH being a rented property, I didn't think that the landlord would appreciate the erection of a tower in the backyard!

In one of the 2100 net technical discussions one night, Robert VK3KRB brought up the topic of "patch" antennas and how patch arrays could be electronically steered. The topic of "patch" antennas generally drew a blank from every body else, including myself and we all decided that we didn't understand how they worked and these antennas were really used at microwave frequencies and didn't really have any application for VHF and UHF,

I had heard that there were a couple of high orbiting satellites namely AO10 and AO40. The big advantage with these satellites is that their footprint at times covers half the world and the prospect that you could work the States and Europe on VHF/UHF was quite exciting. The other advantage was these satellites moved relatively slowly compared to the low orbiting satellites which meant you could point your antennas at them and be able to leave them there for a considerable period of time without the need to track them across the sky.

I then decided to concentrate on AO40 and managed to convert a 2.1 GHz down converter to 2.4 GHz, down converting the downlink on AO40 to 2 metres. After a lot of persistence, late one Saturday night using this converter with its grid reflector, I managed to hear the middle beacon of AO 40. It was only one S point above the noise. I could also hear some weak sideband signals and some Morse code. In the next few days I managed to transmit into AO 40 on 70 cm and heard myself and couldn't believe the enormous time delay which seemed to be at least 1 second.

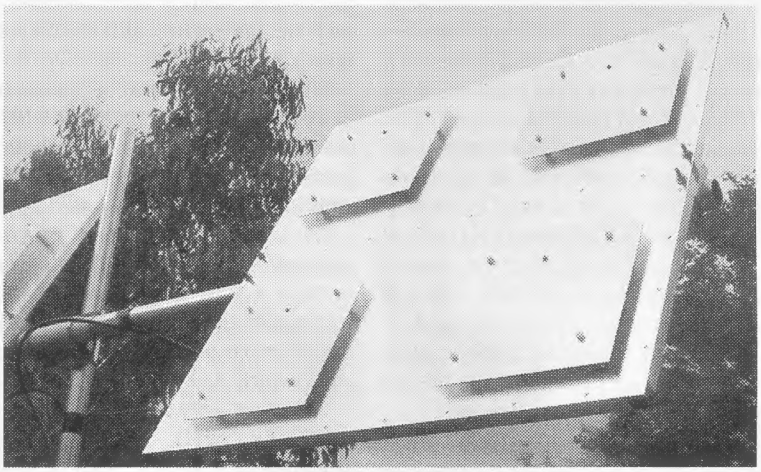


Photo 1. Final dual patch array

My first contact on AO 40 was to Charlie, VR2XMT in Hong Kong and second was to Scott, NX7U in the States. After emailing Scott, and having given him a signal report of 1*1, his report on my signal was 5*6. At this point I realised that my downlink was not working well.

When I was over at Peters QTH, VK3DI, I spotted a large 1.5 m microwave dish lying outside in his back yard, which Peter kindly loaned me. I worked out that if I used this dish for the downlink, the additional gain taking into account circular polarisation, I should achieve an additional 10 db.

After measuring up the dish to ascertain the focal length etc, I calculated that I would need a 1.86 turn helical to optimally illuminate this dish. The problem with this is that a 1.86 turn helical would not perform as calculated as the general formulas for helical antennas were only applicable for a helical of a number of turns (probably 3 to 4 turns minimum). Any way I built a 2 turn helical and this immediately lifted the AO 40 beacon from 1 S point above the noise to 3 to 4 S points above the noise. I could also hear a dramatic increase in the readability of other stations.

Very pleased with this I managed to work a number European stations and even the UK.

I was not convinced that the helical was illuminating the dish as I thought. I wasn't achieving a 10-db increase over the grid antenna.

After looking at the web for some clues, I found a commercially advertised 2.4 GHz dish which had, you guessed it, a "patch" feed. The radiation pattern was ideal and the axial ratio, which is a measure of the antennas circular polarisation, was near perfect. (A 2 turn helical does not have a good axial ratio).

The "patch" feed had come back to haunt me.

After referring the matter to the 2100 net technical forum, Robert, VK3KRB emailed me some URLs on articles on "patch" feeds. One of the articles was a very detailed description of all the antennas on AO 40 written by the people who built the bird. Lo and behold, the antenna used for 70cm was an array of 6 "patch" antennas. Whilst it didn't give a technical description of how they worked, there was very detailed information on dimensions, feed points, impedances and how to connect to create circular polarisation.

The only technical description referred to a patch antenna being equivalent to a couple of slot antennas. I thought it was time to re-familarise myself with the principles of a slot antenna, so I dug out an old textbook, which dealt with slot antennas and after skimming over a lot of maths the final analysis, is relatively simple.

A slot antenna is simply a slot cut in a large sheet of metal. However if you were to make a dipole out of the piece of metal, which was cut out to create the slot, there is an interesting relationship between that dipole and the slot created.

The two antennas are complimentary and almost exact duals, in other words everything is opposite i.e.

1. The centre feed point impedance of a dipole is minimum at the centre corresponding to a current maximum and impedance maximum at the ends corresponding to a voltage maximum.
2. The centre feed point impedance of a slot is a maximum across the centre of the slot corresponding to a voltage maximum, and impedance minimum at the ends corresponding to a current maximum.
3. The impedance of a centre fed resonant dipole in free space varies from about 60 to 70 ohms (depending how fat it is) and the impedance of a centre fed resonant slot varies from about 590 to 510 ohms (depending on how wide the slot is). The fatter the dipole the lower the impedance, the wider the slot the higher the impedance.
4. A horizontal dipole creates horizontal polarisation whereas a horizontal slot creates vertical polarisation.

But how does this relate to the "patch" antenna?

Whilst having to do further reading on the subject and not knowing whether this is strictly correct, the analogy I see is that a "patch" antenna is the unbalanced form of slot antenna as the quarter wave ground plane antenna is an unbalanced form of a dipole.

The "patch" antenna has 2 vertical slots and two horizontal slots created by the space between the edges of the patch and the ground plane. The horizontal slots radiate vertical polarisation and the vertical slots radiate horizontal polarisation. The patch is grounded in the centre so the feed point impedance varies from zero ohms at the centre to somewhere near 300 ohms at the centre of the patch edges (assuming my analogy is correct). So the "patch" antenna is like 2 separate antenna sets in one (although I am not sure whether you could feed each antenna set with a different transmitter)

Having both polarisations available lends this antenna to creating either right or left hand circular polarisation by connecting the horizontal and vertical slots together with a quarter wavelength of coaxial cable to provide the 90 degrees phase shift. This is similar to how crossed yagis are connected to create circular polarisation.

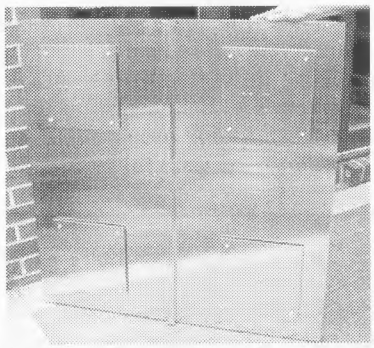


Photo 2. One of the 4 patch arrays

Construction:

Initially I was ready to built one of these for 2.4 GHz using the dimensions quoted. However after further discussions with the 2100 net, Dave, VK3AAD suggested I build one for 70 cm to make sure it works before building the 2.4GHz version

It is strongly recommended that prior to building any of these antennas you:

1. Read the article on the AO40 70 cm "patch" antennas http://www.amsat.org/amsat/sats/phase3d/antennas.html
2. Adhere closely to the dimensions given.

The ground plane I used in the prototype was a piece of aluminium sheet 600 X 600 mm. The size of this is not critical and this can be reduced somewhat. I believe that the ground plane should be at least 100 mm larger than the patch (providing 50 mm extension of ground plane on each side of the patch)

The patch is made of 1 mm brass sheet and measures 315 X 315 mm. I decided to use brass sheet as this would make it easy to solder a connection to (There is no reason why you couldn't use aluminium sheet). This was found to resonate at 438 MHz. This is slightly smaller than quoted in the Amsat article as I found that the original size of 0.47 wavelengths (325 X 325mm) resonated somewhere below 430 MHz.

The centre of the patch is grounded and spaced from the ground plane a distance of 12mm, by using a 3/16 stainless steel bolt with two stainless steel locknuts used as spacers. The patch is supported at the corners at a height of 12 mm using inch nylon bolts with two nuts used as spacers. The support points in my prototype are 40 mm from each corner along the diagonals of the patch.

Feeding the "patch" antenna is achieved by running the coax from behind the antenna, through a hole in the ground plane, connecting the outer to the ground plane and the inner to the feed point on the patch. As is the case generally when working with UHF, all lead lengths should be kept to a minimum. The outer braid of the coax should be continued through the ground plane and cut just short of the connection to the patch.

The 50 ohm feed point is located at 0.078 wavelengths from the centre of the patch along the line joining the centre of the patch and the middle of one of the patch edges. Feeding the patch at this point will excite the slot closest to the feed point and the other parallel slot.

Connection to the other pair of slots is done in exactly the same manner.

Circular Polarisation:

To create circular polarisation, with a linear antenna array we require the following:

1. Two identical antennas polarised at 90 degrees to each other.
2. A phase shift in the feed to the

antennas of 90 degrees so that one of the antennas is either leading or lagging the other by 90 degrees depending on whether you want Left Hand (LHCP) or Right Hand Circular Polarisation (RHCP).

The concept of creating circular polarisation with 2 linear antennas can be quite confusing especially when it comes to determining which connection creates RHCP as opposed to LHPC.

There are a number of important points regarding circular polarisation:

1. The direction of rotation of circular polarisation is the direction of rotation of the electric field vector in the direction of propagation.
2. The polarisation rotation is as viewed from behind the antenna.
3. RHCP is the most the common.
4. In the case of an axial mode helical, the direction of rotation is the same as the winding direction.
5. When using linear antennas to create circular polarisation, ***impedance matching is vital.*** A quarter wave piece of coax is a "dangerous" length to work with because any mismatch here will produce impedance transformation leading to unequal power being delivered to each linear antenna.
6. For crossed yagis (one at 90 degrees to the other) feed the 90 degree one first, with a quarter wave connection to the 0 degree one for RHCP. Vice versa for LHCP.
7. For "patch" antennas feed the horizontal slots first, with a quarter wave connection to 90-degree connection to the vertical slots for RHCP. Vice versa for LHCP.
8. When the antenna is driving a dish the polarisation is reversed i.e. for RHCP drive the dish with LHCP.
9. Another simple way to change from RHCP to LHCP is to add a half wavelength of coax to the existing quarter wavelength of coax.
10. All lengths are electrical lengths and the velocity factor of the coax must be taken into account together with the electrical lengths of connectors etc.

Because the patch antenna can be tapped anywhere between the centre and the outside edge, the 50 ohm points on the vertical and horizontal slots can be joined by quarter wave length of 50 ohm coax. This provides the 90-degree phase shift for circular polarisation.

By paralleling the 50-ohm points, the impedance at those points now becomes 25 ohms. By now tapping the 100-ohm point, the impedance at this point now becomes 50 ohms after connecting the 50 ohm points with the quarter wavelength of 50 ohm coax. The 100-ohm point is found at 0.115 wavelengths from the centre. (See photos in part 2)

In my prototype, I actually used N type connectors to tap the 50 and 100-ohm points so that I could do various measurements. As a result, when taking into account the electrical length of the connectors and connection to the feed point, I had to add either a half or full wavelength of coaxial cable to the quarter wavelength because the resultant piece of coax to make up the electrical difference was too short and would not reach the connectors!!

Testing

Initially I tested the antenna connected for vertical polarisation. The VSWR at 438 MHz was less than 1.1 : 1 as driving the antenna with 25 watts from my IC 471A, there was virtually no reflected power as read on my Bird Wattmeter on the 25 watt range.

With the antenna at a height of 6 metres at my QTH in Bentleigh, all the local repeaters (RMU, RHF, RMM, RSE, RGL) were full scale on receive. Repeater RAD at Mitcham was about strength 5 and RPU at Arthur's Seat was strength 2.

I did some further tests with Rod, VK3DQF in Beaumaris and determined there was good cross polarisation rejection and using Rod's 70 cm helical there was about a 3db increase going from linear to circular polarisation.

The real test was a couple of nights later when I decided to see if I could get a signal into AO40. A 5 X 3 signal report from Rene, DJ1KM in Hanover, Germany completely exceeded my expectations. Not bad when AO40 was more than 60,000 kms away during this QSO.

I am so impressed with the performance of this very compact antenna; I am now designing an array of 4 patches to be used for further satellite work. I have also build a patch feed for 2.4 GHz to feed the 1.5 metre dish, but haven't fully tested this.

ar

Over to you

Foundation Licence

I would like to express my opposition to the proposed Foundation Licence. I oppose the dilution of the qualification to operate an Amateur Radio Station any further.

I was a confidant of Rex Black VK2YA (now SK) who lived at Springwood in the Blue Mountains in the 1970s, who formulated and lobbied for the introduction of the Novice Licence as an entrance level examination to the Amateur Radio Service, particularly for those kids at High School who had been introduced to radio via the Youth Radio Scheme.

As I remember the Novice Licence originally had a Sunset clause, where the holder was given two years to upgrade or lose the licence. However this carrot was removed, so that a person could remain a Novice Licencee without ever having to upgrade. Other restrictions such as band usage and power limitations were also modified in the licence conditions; we opted for QUANTITY rather than QUALITY! Do we really want to perpetuate that mistake?

Surely entry to Amateur Licence holder status is low enough as it is, with multi choice questions, with a 1 in 4 chance of guessing the correct answer, the availability of answers to questions most asked in former exams, not to mention the crammer courses run by some Radio Clubs.

A further watered down entry level Amateur Licence to gain members to our ranks would be akin to branch stacking in politics. We might as well go the whole hog and advise the ACA to sell a licence through the retailer when a transceiver is sold!

Those who really want to gain an Amateur Licence with the minimum of effort will do so via the Novice Licence examination. This is the Foundation Licence as it was always ment to be. I say leave it that way.

Neville Chivers VK2YO

Six metre half wave vertical using a CB whip

Peter Cosway VK3DU
67 Brewster Street, Essendon 3040

I wanted a mobile aerial for six metres, preferable using a magnetic mount, making it easily transferable on or off a vehicle.

I have used a two metre quarter wave whip, on a magnetic mount, with great success - but six metres was not so accommodating. My attempts to use a quarter wave whip, on a magnetic mount, all produced unsatisfactory results. The SWR fluctuated, depending on where the mount was placed on the roof, and the coax was not doing its job but was acting as part of the radiating aerial. A quarter wave whip attached to a roof rack bar or a bull-bar etc has a ground of sorts. In some cases with this style of mounting even a two metre five-eighths whip can be made to work on six.

What to do? Would a choke in the coax help? I discussed the problem with Mark Harrison VK3BYY, one night, at a North East Radio Group meeting here in Melbourne. A suggestion from Mark set me towards a solution. "You need a ground independent aerial, something like an end fed half wave". Yes, OK, but how? A half wave vertical on six metres was too long! We have overhead tram wires here in Melbourne, as well as all the other usual impediments. Even though my interest was mainly in the horizontally polarised SSB part of the band I had earlier dismissed halos, turnstiles, clover-leafs etc as being too cumbersome - and difficult to arrange on an easily transferable mount.

Then I thought of using a 27 MHz CB quarter wave whip. I had one I had picked up somewhere. It would theoretically be a half wave on somewhere above 54 MHz - it should be possible to tweak it a bit lower in frequency. I also had a magnetic base with an S0239 UHF socket. This made the coax shield accessible. The alternative, a mount that just uses a threaded shaft connected to the coax centre, would not work for what I had in mind. The handbooks say a half wave dipole gives a theoretical gain of 1.8 dB over a quarter wave but in an end fed configuration presents a high impedance.

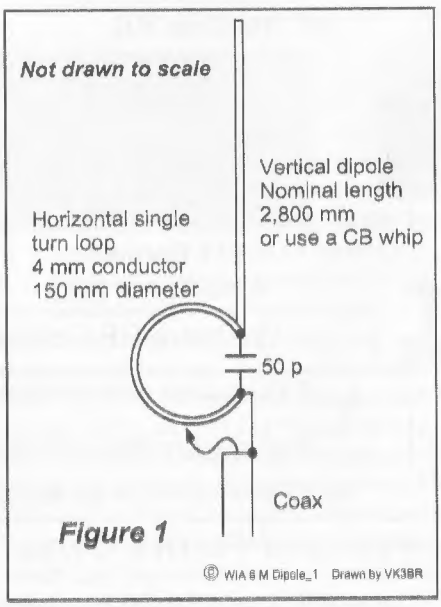
A look around at various commercial half wave aerials indicated that a tapped loop feed was popular for matching. It matches the high load impedance to low impedance coax, and hopefully isolates the braid from the radiating aerial. An aerial for home use on six metres could be built with a full length half wave element. For mobile work though a helically wound CB whip would be more practical. The one on hand was wound with an even pitch and was very light weight.

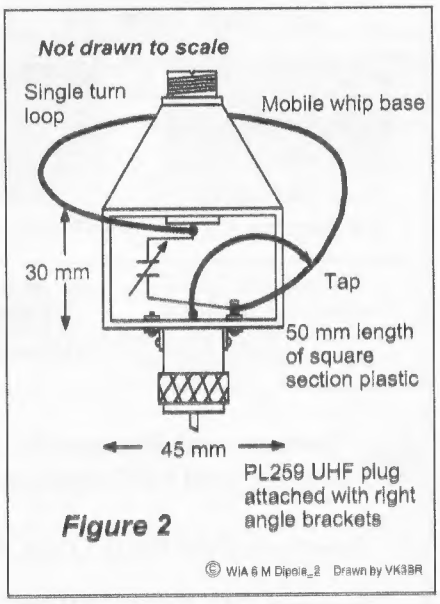
Initially however, I could not get this whip to load up. I tried to trim the horizontal loop to frequency with a fixed capacitor across it, and tried to bring it on frequency using a Grid Dip Oscillator. It seemed to be on frequency but I could not get a match point with the variable tap.

After talking to Mark VK3BYY again I took his advice to try it with a variable capacitor and a full length half wave. I parked the car under a tree and dangled a length of aluminium down on a rope and attached it to the loop. The tap was made with an alligator clip on a short length of stout hook-up wire soldered to the pin of the coax plug. After varying the tap position I found I could load it with an acceptable SWR for the side-band end and the FM portion. Then I tried the CB whip. It tuned up but was only usable over about 500 kHz. The whip is now tuned up centred on 50.150 MHz. By moving the alligator clip and resetting the variable capacitor it can readily be re-tuned to work in the FM portion of the band. The 50 pf trimmer is a small 4 plate capacitor from the junk-box.

Now that the arrangement has been proven it could be replaced with a fixed capacitor to make a more weatherproof layout. Also the matching connections could perhaps be enclosed in a plastic box with the loop coming in and out through holes in the side. A full length half wave could be fine for the whole band but a helically wound whip would not be so versatile without the variable capacitor. The range and variety of 27 MHz CB whips is endless so be prepared to experiment.

ar





Figures 1 & 2. A loop fed six metre vertical dipole

TTS Systems Communications Equipment

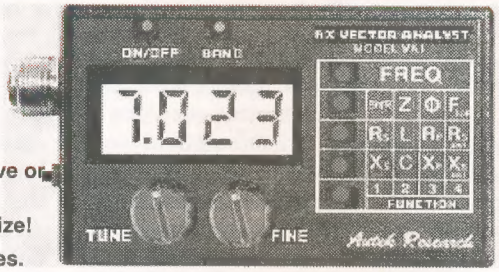
TTS Systems

FREE CATALOGUE www.ttssystems.com.au

HF and VHF Transceivers, Autotuners and Kits

New !!

Autek Research RF/Antenna Analyst.



An accurate antenna/network analyzer that measures VSWR, Impedance, Inductance, Capacitance and Reactance.

True signed reactance readings on the VA1. Is the reactance component inductive or capacitive?

Three models covering 1.6 Mhz to 500 Mhz. Low Cost, Low Power and Small Size!

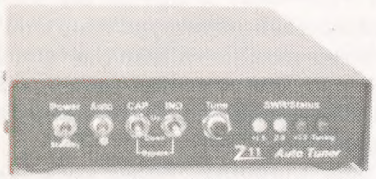
Comprehensive instruction manual describing many RF measurement techniques.

All in a pocket-sized instrument. **Call for data sheets and more details**

TEN-TEC Jupiter HF DSP Transceiver

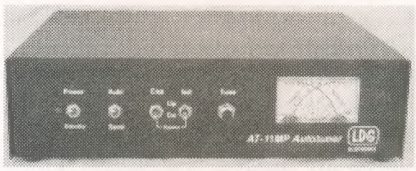
- Easy-to-read LCD main panel display.
- Band sweep function
- 34 built-in receive filters—300 to 8000 Hz.
- Multi-function meter provides bar graph and digital readout of signal strength, TX power and SWR.
- Seven selectable main tuning rates

Get Kitted Out "It goes better on something you made yourself"

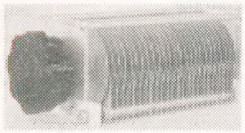


Z11 QRP Auto Tuner Kit

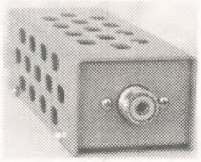
HF Receiver Kit



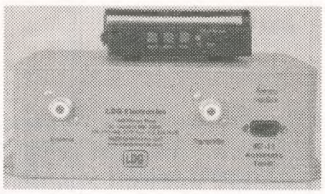
AT11-MP Auto Tuner Kit



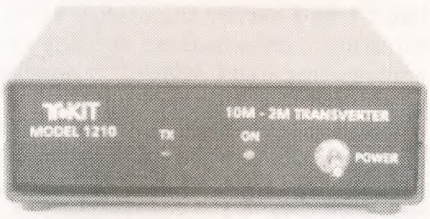
H.V. Variable Capacitor Kit



Dummy Load Kit



RT11 Remote Auto Tuner Kit



10-2M Transverter Kit

Soon from Ten-Tec.
The Orion HF 32 bit DSP Transceiver and the Argonaut V QRP IF-DSP Transceiver.

TEN-TEC

We have RF Cables, Connectors and Baluns

★ All kits include easy-to-follow step by step assembly instructions.

You supply the soldering iron and basic tools!!!.

All kit products can be supplied fully assembled and tested.

Service and Support for all Ten-Tec and LDG equipment

We stock ***Amidon Iron Powder and Ferrite Cores*** *— Call for an application guide*

Phone 03 59774808. Fax 03 59774801 info@ttssystems.com.au

Measuring echoes and propagation on the HF bands

Part 2

By H. de Waard (PA0ZX) and J.G.C. Niehaus (PA0FA)
Translated by Peter Kloppenburg VK1CPK from 'Electron' of October 1993

In Part 2, PA0ZX and PA0FA start with the Monostatic long-distance Radar, a cheap propagation monitor for the HF bands and how this can be used by Radio Amateurs.

Measuring propagation

On the basis of experiments described in the previous paragraph, refer to the December 1993 issue of 'Electron', a simple instrument is developed with which we can determine if there is propagation.

Many Amateurs ask themselves sometimes "What are the conditions at the moment". The normal way to find out is to listen on the various bands, or call "CQ-DX" and then wait to see if something comes up. This action does not tell you if the band is open in some other direction! In silence, the wish is often expressed "Apart from my ohm-, volt- and amp meter, I could do with a propagation meter".

The measurement of propagation at an arbitrary moment was until now only possible to be performed by Government departments and scientific institutions. To ordinary mortals it seemed to be an enormous effort to get the required information at any particular time.

It will become evident from the following that with presently available means, much can be done about this, without denying the benefit of predictions and the youngest branch of Amateur activities, packet clusters.

Monostatic Radar

After the tests described in previous paragraphs with separate transmitter and receiver, the bistatic radar, the question came up whether it was possible to combine transmitter and receiver in one and the same place. One step further is the common use of a directional antenna for transmit and receive. After this, we realised that we could work with one transceiver, provided a number of conditions were met. In this way, monostatic radar was realised. Based on previous experiences, the following starting points were formulated:

1. The transmitter must output pulse-shaped signals
2. The changeover from transmit to receive must happen very quickly.
3. The received echo must be able to be observed on a simple oscilloscope.

This was carried out by PA0FA as follows:

1. The NE-555 was wired as a pulser. Refer to Figure 3 (page 11, AR December/January). At the Key-input of the transceiver appear pulses at 10 Hz, 10 ms wide, with each pulse followed by a rest period of 90 ms. As a consequence of an in-built circuit delay, the transmitter output consisted of pulses with a width of 3 ms in this instance (ICOM IC-765).
2. The short HF pulse is only generated when the transceiver is in the "full break-in mode". The dead time right after the pulse is transmitted is about 20 ms, which when added to the transmit pulse of 3 ms, gives a minimum delay of 23 ms.
3. The two-channel scope is triggered through channel A by the pulser, and the audio signal is connected to channel B. The scope's timebase is usually set for 10 ms/div. When a single channel scope is used, the trigger input is used for pulses and the audio signal is connected to the Vertical Input.

In the previous paragraph we mentioned that the first echo returns after 12 to 18 ms, these cannot be seen using this particular transceiver. Although this is very unfortunate, the monostatic tests were continued with, because the results were sensational from the beginning. Where in the bistatic setup the first echo was clearly defined and the second one reasonably so, in the monostatic setup the second echo was also clearly defined and well above the noise. To be able to observe more clearly the reflections from locations much further away, it was necessary to improve the receiver's signal to noise ratio. This was not a great problem with the built-in narrow-band filters. The standard IC-765 is equipped with a 500 Hz CW filter. An optional 250 Hz filter was also installed. With each transmitted pulse, we now received nearly always-different reflections from points on the earth's sphere, at ever increasing distances. (See Figure 11)

Observations with the Monostatic long distance radar

Left, on the scope's screen, is a pulse that is generated by the "Side-tone" oscillator (BFO). The length of this pulse compares with the transmit time of the HF pulse. About 20 ms after the trigger pulse, the receiver recovers to its normal sensitivity (AGC on fast). During the time interval until the next pulse is transmitted, any echoes present can be observed (Figure 11). The sound that comes from the speaker is first the short side-tone simulation of the transmitted pulse. After that you can hear the reflected signals that are made audible by the BFO facility. The Pitch-Control should be used to make these signals have a high pitch, to get a well-defined display on the scope. You can expect the first echo to appear after 25 ms probably with fluctuating amplitude.

It is recommended to keep the noise level confined to within one major division on the scope screen. The returning echo signals can then be observed in the correct ratio above the noise level. Recognisable Echoes have been observed with delays of 65 ms after the transmit pulse. With some doubt, it is better to say, "Saw no echo". Naturally,

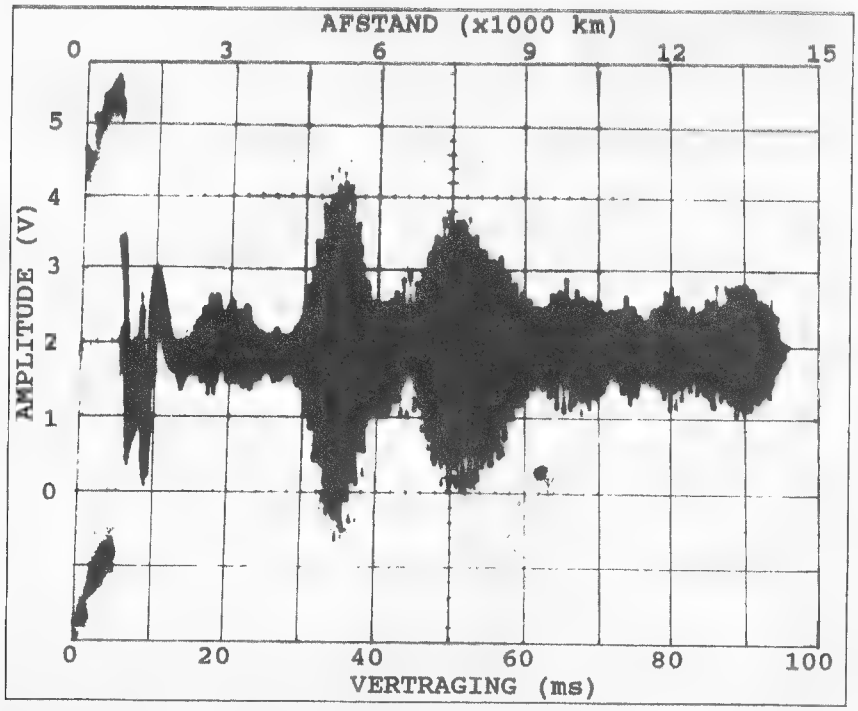


Figure 11: Record of echoes using monostatic radar (PA0FA). The sinus-shaped signals come into existence when the BFO is switched on. Left, the transmitted pulse, followed by a few decaying oscillations; after a dead time of about 20 ms, in which the first echo appears, we clearly see a second and a third echo. Recorded on 17 September 1992 at 15:20 UTC. Frequency 21.23 MHz, Bandwidth 250 Hz, Beam heading 100°.

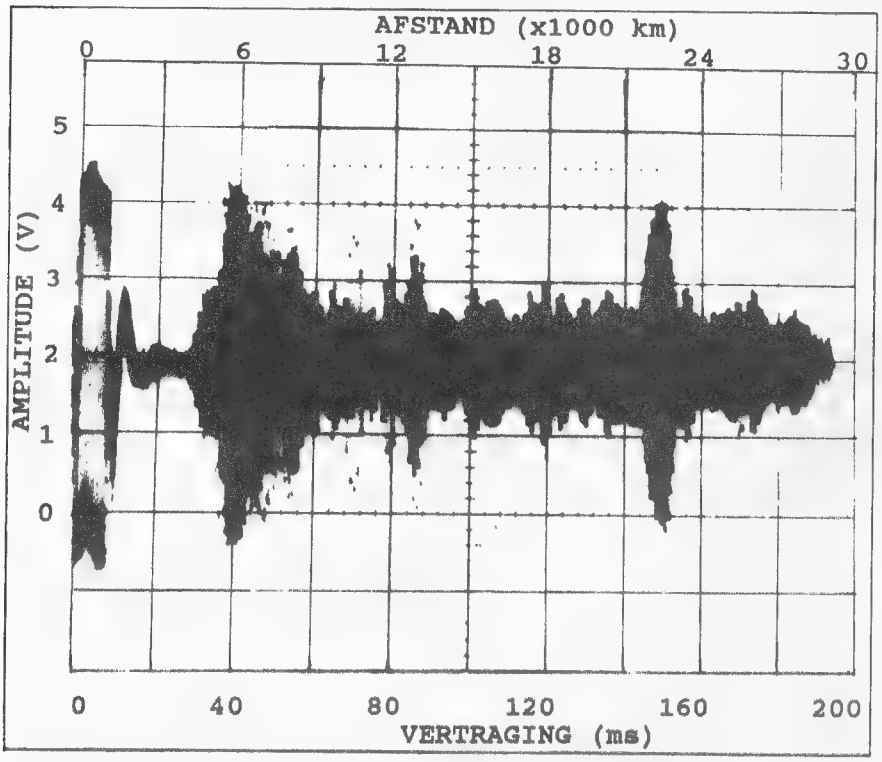


Figure 12: Record of echoes using monostatic radar, using a longer time scale (PA0FA). Here you can also see, apart from the 'normal' return, a sharp peak with a delay of about 140 ms, coming from a pulse that went once around the earth (not an echo, for which the scale is valid). Recorded on 18-10-92 at 08:20 UTC. Frequency 21.42 MHz, Bandwidth 250 Hz, Beam heading 230°.

the presence of echoes is completely dependent on propagation in a particular direction. No echo, no propagation.

Distinguishing between echo and noise can give problems. With noise, we mean any signal that does not result in recognisable or regular repetitive echo signals at the correct frequency. It is possible to make a good distinction between a repetitive echo and noise by detuning the receiver by about 1 kHz using the Receiver Incremental Tuning (RIT) control, and leaving the transmitter unchanged. The real echo will disappear then. Another possibility is changing the heading of the antenna; there are always directions from which no echo returns.

Pulse length and Pulse-Repetition-Frequency (PRF)

The transmitted pulse must be long enough to drive the output stage to maximum power, but short enough to quickly observe a reflection. The pulse length should not be longer than 10 ms, since the first echo can return to the receiver after 10 ms. The PRF seems to be an arbitrary business. It would be rather sensible on the one hand to match it to the position of the scope's timebase switch, but on the other hand taking account of the time required by the fourth echo to return.

With "Short Path" echoes, a PRF of 20 or 40 is the most useful one. (Scope owners would set the timebase switch to 5 ms/div or 10 ms/div.) With an PRF of 10 (20 ms/div), a certain amount of flickering shows up on the screen, but this can be overcome by setting the timebase switch back to 10 ms/div. Use of a timebase set to 20 ms/div and a PRF of 10, provides the opportunity of observing "Long Path" echoes, as well as observations of propagation around the earth.

A tour around the world in 140 milliseconds

During tests with the objective of detecting "Long Path" echoes, a PRF of 10 was used. At different times and from diverse directions a signal was observed with a delay of about 140 ms (Figure 12). Very soon, it was realised that the transmitted pulse had made a tour of 40,000 km around the globe. The signal came through the back of the antenna

suffering an added attenuation of 20 dB because of it. No further argument is necessary to realise that with two rotatable antennas interesting observations can be made.

Disadvantages of echoes on the bands

We have seen in the foregoing which are the useful and enjoyable aspects that echoes can provide. We can study the behaviour of the ionosphere, we can check in which direction DX contacts can be made, and we can often make contacts with Amateurs within the skipzone. This last advantage becomes known when, from a limited area, more stations want to contact a DX station.

However, we must also deal with the less pleasant aspects. Problems can develop for AMTOR contacts. When the other station receives a relative weak signal during the contact, a large number of ERRORS can develop because the control signal of the other station is overrun by that station's own echo signal. How serious this is depends on the time taken until the station's own echo signal returns, on the currency of the control signal from other station to ones own station, and on the signal strength of the station's own echo relative to the signal of the other station.

It can happen, that, judging by the sound, an excellent Amtorlink produces a large number of repeats because of the echo effect. Generally, you would not recognise this immediately.

An example with numbers can give somewhat more insight. Assume that the AMTOR timing details are known. Imagine an AMTOR contact between two stations separated by a distance of 3000 km. We call A the master and B the slave. The delay from A to B is 3000 (km)/300,000 (km/s) = 10 ms. After receiving a "Block" from A, B returns a control block back to A. The beginning of this control block arrives at A after 20 ms. After 25 ms A's own *second echo* returns. It takes little imagination to realise, that a collision of sorts can take place between the control block and the echo. Even if only one bit of 10 ms comes across faulty, the whole block is rejected and a request for a repeat is send out. Prolonged faults can result in time-outs.

The licence conditions

Naturally, on-air manners have to be upheld at all times. You must realise that other stations in general do not completely understand what all that ticking is about. Please adhere to the following rules:

- Ask first if the frequency is in use
- Give clear station identifications at regular times
- Mention that you are conducting a ionospheric test
- Don't make your transmissions longer that necessary
- Don't use too much output power; peak power of 100 watt is sufficient

When switched to "CW", the bandwidth of the transmitted pulses is limited in every commercial transceiver by a filter. From the rise and descent times of the received pulses (using a receiver with a wide bandwidth) we are able to conclude that the transmit bandwidth in our case is only about 500 Hz.

Conclusions

This article has described a number of circuits to aid our echo-experiments on the HF bands and the results that were obtained. Its most important objective is to show that with a few extra simple circuits, a new dimension can be added to our hobby. Not all the experiments that were made have been described, in particular not the coming into being in the morning and the disappearance at night, of propagation on the 10 metre band, caused by the occurrence of sunrise and sundown. Also the small differences in delay time of echoes on various bands and the change in this delay during the day have not been accurately analysed. Another, mysterious appearance is the occurrence of echoes with very long delays: many seconds. Scattered over many years, something has been written about it, but there is still no satisfying explanation of the phenomenon. With Amateur patience and a slow-running tape-recorder, something new can still be discovered. Our method of echo recording on photographic film or on audiotape is electronically seen, very primitive. Modern memory chips and digital data processes provide the means for getting much more quantitative details.

There is still much original detective work to be done. The professionals have not seen everything. The variation of the adventures which electromagnetic waves in the ionosphere and on the freakish, reflecting earth surface can experience is nearly unlimited.

FEDERAL WIA CONVENTION
APPOINTMENT TO FEDERAL POSITIONS

The WIA Federal Convention and Annual General Meeting of the WIA will be held in Adelaide on 4, 5 and 6 April 2003.

At this meeting, a number of positions will be filled. Nominations from interested persons must be received by the Federal Secretary at the registered office of WIA Federal in Melbourne no later than **close of business on 21 February 2003.**

The positions are:

(A) Federal Executive

President
Directors (3 positions to be filled)
Company Secretary

(B) Officers and Coordinators

Editor "Amateur Radio" magazine
Publications Committee
WIA/ACA Liaison Committee
IARU Region III Liaison Officer
ITU Conference & Study Group
Federal Web Page Coordinator
Chairman Federal Technical Advisory Committee
Federal Education Coordinator
Federal Historian
AMSAT Coordinator
Intruder Watch Coordinator
Federal Contest Coordinator
Federal Awards Manager
Federal WICEN Coordinator
International Travel Host
ARDF Coordinator
Federal QSL Manager
VK9/VK0 QSL Bureau
QSL Collection Curator
Videotape Coordinator

Nominations received direct will be considered but preference is likely to be given to Divisional nominees

Peter J. Naish, VK2BPN
Federal Secretary

UK Foundation licence one year on

Continued from page 3

licence, with limited but valuable privileges, might be developed and launched, in advance of WRC 2003.

Conclusion

It was concluded that there should be a three tier licence structure commencing with a Foundation Licence, followed by an Intermediate Licence leading to a full or un-restricted Licence. It was also concluded that to reach the full licence it was necesary to progress from the Foundation Licence with no possibilities of over-passing any step. Each level of licence would have the syllabus so designed that no subjects were repeated within the progression.

The structures were agreed by the R.A. and in October 2001, following a pilot course, the Foundation Licence was born and commenced in January 2002.

Foundation Licence

The syllabus for this entry licence had to be very basic but covering all the necessary subjects to ensure disciplines and procedure are known to create a safe and competent Amateur Radio operator. The current course requires a study time of about 12 hours and includes the essential aspects of electronics, R.F., antennas, safety and EMC, together with operating and licencing requirements. The Morse code is also a requirement and similar to that required by a pilot, in as much as it is at 5 wpm and crib sheets are permitted. (It was interesting to learn that no one has so far failed the licence because of the code requirement!).

The course is often taken over a weekend and candidates have to make both HF and VHF live QSO's on air as part of the course. They have to show they can tune a ATU and set up a HF transceiver as well as use correct operating procedures.

Privileges

The foundation Licence offers full H.F. availabilty with the exception of 28 MHz and frequencies above 440 MHz. Power is restricted to 10 watts and the equipment must be commercial and recognised by the authorities. Recognised kits are permitted. (I understand that the 28MHz band was omitted because un-authorized CB equipment being available).

Tutorial

A full tutorial is available so that candidates can prepare themselves in advance. However they must still take the course. The course is given by any Full licence Radio Amateur and is generally conducted by local Clubs. (This incidentally has led to an increase in Club membership around the country). To-day over 300 Clubs are registered to participate in the programme.

Examination

The examination is conducted by authorised persons with Invigalators present. The papers are marked and verified at the completion of the examination so that the candidate can then make immediate application to the R.A. for their licence.

It all sounds simple but be assured there was a tremendous amount of work and disciplines necessary to ensure smooth working.

One Year On

At the end of December 2002, 6,000 Foundation Licences had been issued. Of these 3,500 were brand new entries. The remainder were conversions from other classes of licence. It is interesting to note that of the 19,000 Class B VHF licence holders in the U.K., only 2,500 converted. So where did 3,500 people suddenly appear from? They came from family associates of existing amateurs who now found a simply way to join in the hobby. The Scouting and Cadet Forces found it more than useful to teach their members communications and give them an appreciation of HF communications. At the end of the year there were around 50 new licences issued each week. Statistics indicated that 800 were under the age of 21 and there were not many over the age of 75!

Other than just an influx of new Amateurs it was also interesting to learn that local clubs were also increasing their membership, with one club boasting they were down to 3 members and now have 36!

Anecdotes

Some of the interesting comments recorded were

1. We planed on having enough Foundation paperwork for 1,000 candidates in the whole year. By the end of March we had already sent out 3,000 copies! - RSGB HQ
2. Since the Foudation licence started, we have sold out of Morse keys and buzzers! - UK Retailer.
3. Since my son took an interest in amateur radio, he has no trouble with his school work on technology. - Parent.

Future

Very few changes are planned this year. The examination questions are being increased to 25 and any one failing cannot repeat for at least 2 weeks.

I asked about the need for the Morse test and was told that this would probably remain as it is not difficult using crib sheets and will provide an appreciation of another form of communcatios other than voice. (I was told the Military have re-introduced it into the curriculum for communications.

The RSGB has just completed the syllabus for the Intermediate Licence and is now concentrating on the syllabus for the Full, or Un-restricted licence.

Will testing be via the Interet one day? It is being investgated, You will just have to keep reading A-R

So, I think you will agree, the Foundation Licence is a success and a way into the 21st Century. My personal conclusions after the meeting at the RSGB HQ was that the U.K. was really leading the way. The W.I.A. Federal Council is studying this closely and it will be a major subject at the Federal AGM in April.

ar

Snail mail address for contributions:

The Editor
Amateur Radio
34 Hawker Crescent
Elizabeth East SA 5112

email address for contributions:

edarmag@chariot.net.au

The *Versatenna*

A traveller's antenna for VHF and UHF

Peter Parker VK3YE
12/8 Walnut Street, Carnegie, 3163
Email: parkerp@alphalink.com.au
Web: http://www.alphalink.com.au/~parkerp/

What can be built in twenty minutes, requires just five parts and needs no trimming of elements? The answer is the Versatenna, a compact two element yagi designed for low power VHF portable use. The pull-apart design makes assembly a snap with no mounting screws to go missing. A detachable driven element and feedline lets the user choose between compactness and gain. As a bonus, you also get 70cm operation with the antenna forming a 3/2 wave dipole on that band.

The Versatenna's advantages accrue from the use of two commercially-available TV rabbits ears antennas. This allows both extremely simple construction and a broad frequency coverage ranging from VHF airband to the high-band commercial services. The Versatenna is thus a worthwhile project for scanner enthusiasts and radio amateurs alike.

Gathering the parts

Very little needs to be said as the antenna uses so few parts. You will need:

- Rabbit ears indoor TV antenna DSE L4655 (x2)
- Plastic tubing or conduit 18mm diameter, 490mm long (x1)
- RG-58 coaxial cable (3 metres) and PL259 plug (x1)
- Plastic suction cup (optional)

Other rabbit ears antennas can be used, but construction methods may vary. Whatever antenna you choose, get one with no base; ie designed to fit into the mounting hole on many TV sets. Also choose one with good access to the connections to allow the feedline to be easily attached.

Construction

Figure One should be almost self-explanatory.

Holes are drilled through the boom to accommodate the elements. Their spacing should be 400 millimetres. Start with a small drill bit and use a tapered reamer or old pair of scissors to gradually enlarge the holes until the rabbit ears are a tight snap fit.

The antennas specified have a

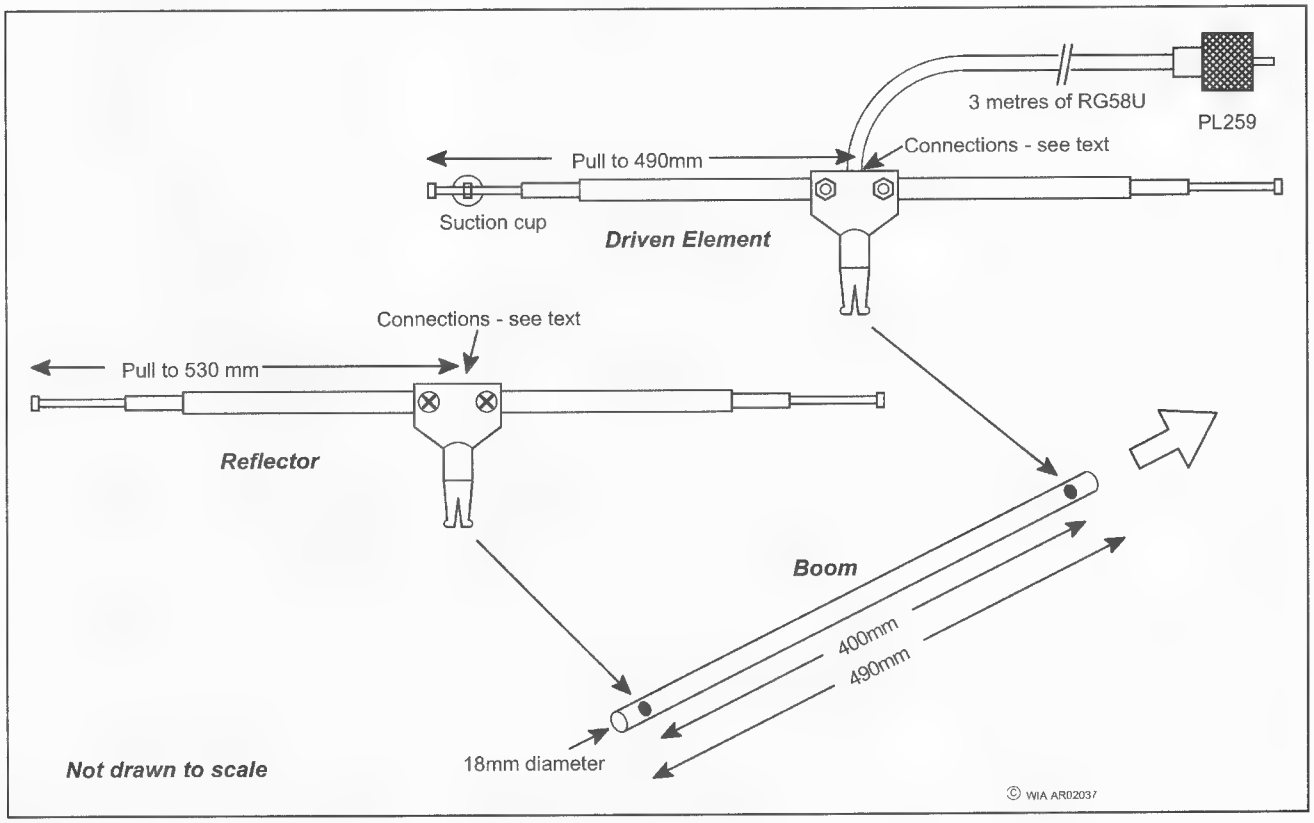


Figure 1

Photo 1. The Versatenna dipole

Photo 2. The Versatenna yagi

Photo 3. The Versatenna packed up

convenient plastic cover that can be eased off with a screwdriver, revealing the connections to the ribbon feedline. With a soldering iron unsolder the ribbon. On one antenna only solder a short piece of tinned coaxial cable braid linking both telescopic whips. Avoid melting the plastic. Replace the cover and put to one side. This will become the reflector element.

Drill a hole in the plastic cover from the remaining antenna just large enough to accommodate the RG-58 coax feedline. Push the cover about 10cm back from the end of the cable. Remove about 12mm of outer jacket from the feedline. Separate the braid from the inner conductor and strip about 4mm of insulation from the inner conductor. Tin both the braid and the inner conductor. Then solder one to each whip's solder tags, thus forming a half-wave dipole and the driven element.

Mark the whip that is connected to the cable's inner conductor with a strip of tape or white paint. This is so you know which side should be up when using the dipole only as an antenna.

For improved mechanical stability, squirt some silicone rubber sealant (eg Dow Corning 732) into the connection and replace plastic cover. Allow sealant time to dry. If you're planning to use the antenna inside a bus, train or hotel room, attach a plastic suction cup to the end of the driven element to which the coax inner is connected.

Testing

With the help of a tape measure extend both sides of the driven element so that both ends are 490 mm from the centre of the boom. Do the same for the reflector; in this case the length to measure is 530 mm.

Take the antenna and transceiver outside and tune for a beacon or busy repeater. The antenna should be clearly directional, with maximum signal being received off the front. There should be sharp nulls off both sides. With a VSWR meter in-line, take several readings across the band. If the lowest reading is below your desired centre frequency, shorten both sides of the driven element a little and repeat until the indication is 1.5:1 or less. If the lowest reading is too high, lengthen the driven element a little.

The lengths given above were those found most suitable for 144 MHz SSB use on the prototype. For 147 MHz FM expect them to be a little shorter.

The portable operator should carry as little equipment as possible. More gear means more bulk, more weight and the increased risk of forgetting something. The need for a tape measure was obviated in the prototype by purposely making the boom the same length as the driven element. Thus the length of the driven element can be set by holding it up to the boom. As a reminder that the reflector is 4 cm longer than the driven element, the label identifying the reflector mounting hole states 'REF = L+4'. For listening the element lengths are less critical, and a look-up table giving reflector and driven element lengths versus frequencies of interest will be adequate.

Results

The Versatenna was tested in rural WA during October 2002. It was used as a portable yagi and dipole for two metres and a 3/2 wave dipole for 70 centimetres.

When used as a yagi it allowed 144 MHz SSB communication with Perth while portable at Kellerberrin Hill. Transmitting power was three watts and the distance covered was approximately 200 kilometres. The contacts were repeated (at lower strength) on 70 centimetres when the reflector was removed and the unadjusted driven element was used as a 3/2 wave dipole.

The suction cup was used when the dipole element was stuck onto the inside window of a road coach. On two metres results were significantly better than a quarter wave whip on the handheld, with contacts established via repeaters up to 50 kilometres distant. Listening tests were also done with beacons in Perth and Bunbury on 50, 144 and 432 MHz. Despite the vertical polarisation, beacons were heard up to 120km away, with 432 MHz signals propagating as well if not better than 144 MHz signals.

Results could possibly be improved by trying alternative configurations, for instance adding dedicated elements for 70 centimetres or bending the elements and adding jumper wires to convert the antenna into a two element delta loop.

WIA website:
http://www.wia.org.au

Robin L. Harwood VK7RH

2003—already proving very interesting!

It looks as if more stations are deciding to leave short wave due to budgetary constraints. Radio Austria International is likely to depart shortwave, although the senders will continue to be used by commercial clients such as the Seventh Day Adventist Church, Radio Canada International (RCI) plus some small religious groups. Similar to the Norwegians, one of the domestic networks is likely to be relayed when not required by the commercial clients.

Merlin recently took over management of the external Norwegian senders. Norway suspended external broadcasts in 2002 it is continuing relaying Radio Denmark International from Copenhagen on the half-hour. The first 30 minutes is usually a relay of the domestic Norwegian network but you may now hear the BBC World Service in English after a 5 minute news bulletin in Norwegian. It now has been discovered that the particular domestic network does indeed relay the BBC World Service in English as an overnight filler.

The two senders also carry programming for the Afghan Government, besides airing several clandestine broadcasts. One of the recent clandestine programs is hostile to the present Saudi government and I have observed it on 9925 at 2100Z, underneath heavy bubble jamming. The station is Radio Al Islayh and I am reliably informed that they have a 24-hour satellite and Internet web feed.

The crisis in Iraq continues unabated and it looks increasingly as if there will be a war. Not surprisingly, over 27 different anti-Iraqi Clandestine stations have been observed, most via short wave. Other Middle Eastern nations and regions have been also been targeted, including Lebanon, Syria, Jordan, Iran. The Kurdish regions bordering Turkey, Iraq, Iran and Azerbaijan, also are where there so many clandestine stations.

Many of these clandestine stations naturally get severe jamming and to avoid this, they quickly adjust their frequencies up or down, often causing severe interference and disruption to legitimate users. These operations are often heard within the internationally allocated HF aeronautical allocations. I am aware that Australian aeronautical HF communications were disrupted late last year by clandestine stations with the accompanying bubble jammers.

Early morning operators on 40 meters would have encountered the anti-Iranian station, known as the "Voice of the Mojahadin". It is in Farsi and can be heard drifting around 7070 kHz at 2000 to avoid the jammers. Some maintain it is in Iraq yet sounds more likely to come from either the CIS or the Gulf region. There is generator hum present similar to that of UAE Radio in Dubaii.

But to return to the impending war with Iraq. The US has commenced their psychological warfare operations similar to that at the end of 2001, to broadcast simultaneously on MW, SW and FM. The HF frequencies selected are presently underneath existing broadcasters. 9715 is supposed to be one of the channels but is blocked by either Deutsche Welle in Slavonic languages or Radio Liberty. The other channel of 11292 is of course well out of the broadcasting bands but of course inside the aeronautical allocations. All I have heard is a carrier just prior to their sign-off at 2000 but cannot detect any modulation.

Another flashpoint emerged in December 2002 on the Korean Peninsular, following the public admission of the DPRK that it had kept up its secret nuclear program and was resuming the operations of the nuclear reactors and it expelled IAEA inspectors. Another casualty was amateur radio and the sole authorised operator was told to dismantle his equipment and take it out of the country.

The DPRK on North Korea is easily heard on the following channels, usually in Korean, Japanese or Spanish from 1000 UTC. 3560,6400, 6520, 6570, 9345 or 9970 kHz usually carries the External service. A clandestine station purporting to come from the South, "the Voice of National Salvation" but of course is north of the DMZ is easily observed on 3480 4120 or 4470 plus Bubble jamming.

A South Korean clandestine "Echo of Hope" is aimed at North Korea on 6348 but use LSB as the AFRTS feeder on Guam is extremely loud on 6350 USB. There is a domestic North Korean station on 2850 but as no shortwave sets exist there, programming must be for the Korean Diaspora in Japan and SE Asia.

HCJB commenced operations from their Kununurra (WA) senders on January 5th at 0700Z. The local time in WA was 3 p.m. and at sign-on, I could detect a carrier but the audio was weak. Listening much later was easier. Programming comes from studios in Melbourne and the channel of 11755 is used. Programming directed to the South Pacific is from 0700 till 1200. However they announced on the final broadcast from Ecuador to the South Pacific, that they were only using 25 kW from WA and would progressively crank it up to 50. There was a delay in broadcasting to the Indian sub-continent to the 12th of January, due to high wind damage. The full 100 kW will be used from 1230 to 1700 on 15480.

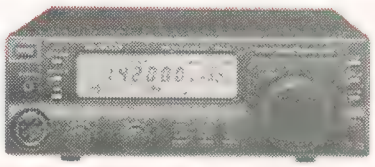
DW in Cologne has announced that they are hoping to commence regular broadcasts in DRM to Asia as from June. Although no sets have yet been manufactured in commercial quantities, the majority of electronic factories are located within Asia and would presumably use the DW signals to align their receivers. However early last month, DW announced they were to suspend HF broadcasting to Australasia and North America. It is unclear if this is only in English but indications are that this will also include German. Again budgetary over-runs has led to this decision. They are also scheduled to move their studios to Bonn from Cologne, this year.

Well that is all for this month. Don't forget you can email your news or comments to me at vk7rh@wia.org.au.

73 de VK7RH

STRICTLY HAM
PTY LTD

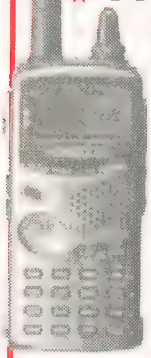
TS-50
Mount it in a vehicle, take it on a DX-pedition or use it as a permanent base station transceiver. The easy-to-use menu system adds flexibility, stable operation in any situation.
- DDS with fuzzy control
- 100 Memory channels **Outstanding performance**



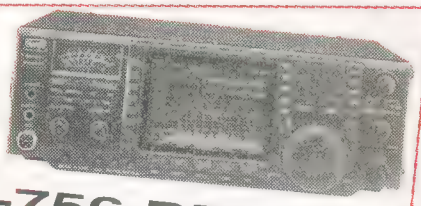
IT-R5
it's here

This little ripper hand-held is so new we haven't got space to tell you all about it ***(but its an IC-R2 on steroids)***
CALL US

TH-D7A(G)



- Dual bander
- Effortless 2m & 70cm
- **BUILT IN PACKET**
- 200 alphanumeric memory channels
- 6W from 13.8VDC
- Comes with NiCd battery and charger
- APRS compatible

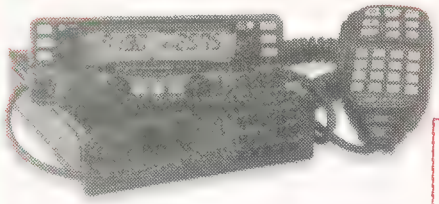


IC-756 PRO/II
Icom's new HF+50-MHz digital
The performance king **Try it to see why**
- Multi-colour multi-function screen

CABLE

IC-746 PRO
Icom **WORK THE WORLD** performance
- The best way to get onto HF plus 6 and 2 metres
- Multifunction hi-res display
- Direct frequency
- Shack or portable

IC-2720H



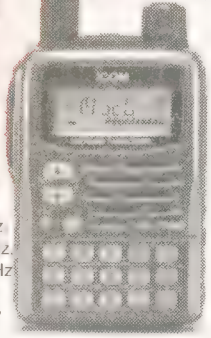
Dual band mobile transceiver. VHF/VHF UHF/UHF or VHF/UHF simultaneous receive capability, independent tuning and packet communication. Colourful backlit LCD, stylish design

TS-2000

- Three operation platforms,
1 Traditional tranceiver-full front panel,
2 "Silver box" for mobile use
3 ARCP-2000 computer control
- 100 watts on HF, 6 metres and 2 metres, 50 watts on 70cm,

ROTATORS

IC-T90A
50MHz, 144MHz, 430MHz multi band with 0.495-999.990MHz wide band receiver



5W output on 50MHz 144MHz 430MHz Li-Ion battery

Compact, rugged, Water resistant. Intuitive keypad, DTCS, CTCSS,pocket beep. Total 555 memory channels 14 high speed

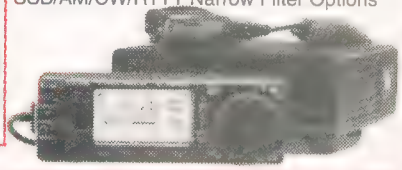
TM-D700A
Kenwood's new TM-D700A makes the most of exciting SSTV, GPS, and APRS® (Automatic Packet/Position Reporting System rapidly gaining popularity worldwide),
Extra large amber and black display, Built-in TNC offers a wide range of options, inc. simple packet operation using AX.25

Ham radio is truly entering a new era.

IC-706MkIIG
Ultra SMALL

167(W) x 58 (H) x 200 (D), 2.45kg Detachable Control Panel/Display (optional equip. required for remote operation)

SSB/AM/CW/RTTY Narrow Filter Options



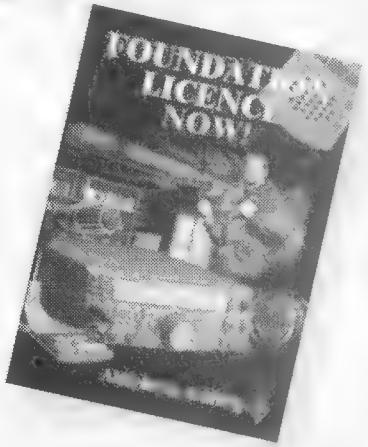
Suppliers and distributors **KANTRONICS–MFJ–DIAMOND–MIRAGE–HY-GAIN–VECTRONICS**

14 CHURCH ST BAYSWATER VIC 3153
Phone (03) 9729 7656 **Fax (03) 9729 7422**
email sales@strictly ham.com.au **www.strictlyham.com.au**

Peter Kloppenburg VK1CPK

Foundation Licence Now!

by Alan Betts G0HIQ



How would YOU like to get access to virtually all of the amateur HF bands in return for spending 12 hours of study, followed by an exam with 20 questions, while having your study material beside you? After the Radiocommunications Agency (RA) introduced the Foundation Licence, the Radio Society of Great Britain commissioned Alan Betts (G0HIQ) to write a practical study guide for those with little or no prior knowledge of amateur radio.

Amateur radio clubs or individual radio amateurs can use this study guide to run a course that provides the practical training to prepare candidates for the foundation licence exam.

The guide presents the practical aspects of the course in an easy to understand style of writing, without radio amateur jargon, using block diagrams, photographs of commercially build transceivers, drawings of antennas, simple charts, and cartoons.

Alan has incorporated the RA's foundation syllabus into the guide to ensure that candidates learn only those subjects essential to pass the exam. Surprisingly, compared with other guides such as "The Novice Operator's Theory Handbook" by G. Scott (VK2KE), there are only eight what you might call 'technical' subjects. Two others deal with Licence Conditions (Regulations) and Morse code. The depth at which these subjects are covered is low, as the guide consists of only 32 pages. Scott's Novice guide covers the same subjects plus six others in 92 pages!

According to the statutes of the International Telecommunication Union (ITU), it is necessary to pass a Morse code test to use the 'high frequency' bands, i.e. the bands which allow world-wide communication. The authorities in the licensing country decides the Morse code speed and the conditions under which the exam is taken. The AR has made an important decision in regard to the foundation licence, by not setting any speed at which Morse is sent or received during the assessment. Therefore, candidates have only to familiarise themselves with the Morse code, but no speed has to be demonstrated. The Morse assessment is on a one-to-one basis and the character speed and spacing may be chosen by the candidate. All the essentials of the Morse assessment are contained on one page.

The band plans for the UK and Australia are not the same. Some of the differences, as shown in the chapter entitled "Licence Schedule", are allocations to the 2210 metre band (0.1357-0.1378 MHz) and the 4.286 metre band (70.00-70.50 MHz) The foundation licence limits transmitter output power to 1 Watt erp on the LW band, and 10 Watts on all the other HF, VHF and UHF bands.

The two-page chapter on safety shows a drawing of a typical mains plug as used in the UK. These plugs carry a fuse inside them that goes open-circuit when the current through the cord exceeds a given level. Explanations are given why it is important to fit the correct fuse and how the plug should be wired. The inclusion of this chapter shows that the RA considers that safety is an important issue and should not be compromised in any way. The same concern is expressed in "Electromagnetic Compatibility". Don't touch the antenna wires when transmitting, you could get a nasty burn. How not to cause interference to your neighbour's TV reception. What can be done to reduce interference? These matters are given considerable attention and detailed solutions suggested.

This guide is well written for its purpose and covers all subjects of the foundation syllabus. Subjects are similar to those in Novice licence study guides except for the depth and breadth of presentation. The emphasis is on practical rather than theoretical aspects, making the text easily accessible to anyone interested in attaining the foundation licence. If the concept is adopted in Australia, the guide could be used as is, except for the differences in allocated frequency bands and the type of mains power plugs. The study guide should be available in school libraries, and would make a good birthday present to anyone with a bent for electronics.

The main headings in the study guide include; *Propagation, Licence conditions (Regulations), The training course, Operating Practices & Procedures, Materials & Information, Electromagnetic Compatibility:, Technical basics, Safety considerations, Transmitters, Licence schedule, Receivers, Morse code, Feeders & antennas*, and finally, *Good luck*

The allocated frequency bands are as follows:

Low Frequency KHz	High Frequency MHz	Very High Frequency MHz	Ultra High Frequency MHz
0.1357-0.1378	1.810-2.000	50.00-52.00	431.0-440.0
	3.500-3.800	70.00-70.50	
	7.00-7.100	144.0-146.0	
	10.100-10.150		
	14.000-14.350		
	18.068-18.168		
	21.000-21.450		
	24.890-24.990		

Published by Radio Society of Great Britain (RSGB). ISBN: 1-872309-80-1

My new beam for DX on two

W.M. (Bill) Sinclair VK2ZCV
35 Wayfield Way Port Macquarie NSW 2444
bilsinvk@oceania.net QTHR 02 6583 9302

After having experimented over a period of several years with various types of antennae for 144MHz (ie. Phased arrays, skeleton-slots, collinear arrays, ZL type feeds and yagi of 6 to 9 elements) it was decided to attempt the ULTIMATE for a normal domestic house lot. As most interest here is centred on the low end of the band using SSB long haul ie. Sydney and beyond to the south, Brisbane and beyond to the north on a daily basis, the design frequency was chosen to be 144.5 MHz. What was needed was an antenna with the maximum forward gain, good F/B ratio and side lobes down about 20db.

The beam in use.

At the time design and construction was started, the main antennae in use was a home brew 9 element yagi of DL6WU basic design. Having had excellent results with these antennae, it was decided to continue along this approach for the new array. After a lot of reading/ research and practical aspects, a 14 ELEMENT design was settled upon. This is roughly equivalent to 2 of the original 9 element designs in stack as far as forward gain is concerned but with a much better F/B ratio. (The stack had been tried.)

Design

A computer program by KY4Z and W6NBI and edited by K4VX based on information from an article 'Extremely Long Yagi Antennas' by Gunter Hoch, DL6WU; VHF Communications, 3/82, was used to calculate the actual dimensions. This program also computes the gain, which is 15.7 dbi. Several other programs confirmed the gain and pattern.

Construction

The materials chosen and used in the design were: -

- Boom square section 25 mm. x 25 mm. x 1.2 mm;
- Elements 10 mm. x 1.2 mm. tubing;
- Driven element Folded Dipole and stay hangers 20 mm. x 3 mm. flat strapping;
- Stays 25 mm reclaimed TV antennae booms;
- boom joiner's 25mm. ID. "U" section;
- Pop rivets 4 mm. Element mounting hardware is an extrusion used on the side of caravans to attach annexes and is cut to 25 mm lengths.

The above all aluminium. Stainless steel bolts, washers and Nylok nuts as required. Six 25 mm. x 25 mm. Plastic chair tips were used in the boom as strengtheners or stoppers.

The Boom is 752.6 cm plus 50 mm. long, this meant that it must have joins, as the material is not available in one piece. The method adopted was as follows; two sections of the 'U'material were cut 300 mm.long. A plastic chair tip was inserted into each open end of the boom and the assembly clamped and drilled on each side of the joint (see photo 1). The far side of the boom and 'U' were tapped 3/16" Whitworth. to suit the bolts. The near side was drilled a neat fit for the bolts so there was no play at all, in fact the bolts must be gently screwed in place.

All elements were cut to length and deburred, then inserted in the mounting extrusion after the centre section had been smeared with a little jointing compound. (Alminox). Each of these assemblies was drilled on a drill press to take the pop rivets. See photo 2.

The folded dipole was then cut and bent to the required shape. By using strap type material, it is much easier to make folded dipole assemblies; various other feed methods had been tried in the past with some success when set up correctly. A section of boom material was cut so as to allow the centre of the driven element to be in line with the centre of the other elements. Some fibre glass (ex sail stiffener) flat stock was used as a mount for the fed section of the dipole and support for the balun. See photo 3.

The element positions were carefully marked out on the boom. A wooden jig was used to align the elements at right angles to the boom and a hand electric drill used to drill the mounting holes for the rivets. The elements were then mounted after smearing the bottom of the mounting flange with jointing compound.

Photo 1 The boom joint construction.

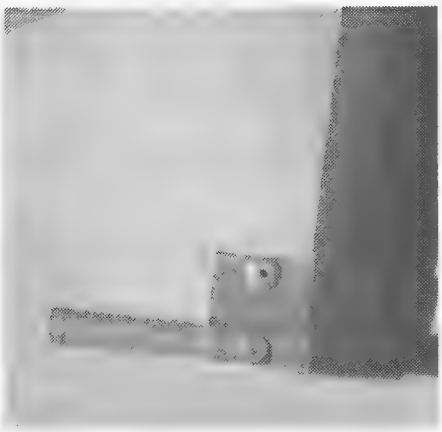


Photo 2 Element mounting arrangement

A mounting bracket for the 'N' type connector was cut to size and mounted on the bottom of the boom. At this time the $^1/_2$ wave coaxial balun was cut to length and mounted. RG59 was used as this has a higher break down rating than RG58.

Initial testing began by mounting the antenna on two wooden trestles in the clear in the back yard. This proved the design did work, in fact at one stage VK2ZAB and VK2KU, Sydney and Blue Mountains were both worked with the beam at fence height and 7 watts from the ICOM 706 barefoot. Further testing confirmed the matching to be excellent.

The ends of the elements were sealed with neutral cure roof and gutter sealant to prevent them whistling in the wind and causing the material to crystallise and fracture. The ends of the coax cable 4/1 balun were also sealed but with RTV 738 a non-corrosive compound. The complete aerial was coated with Tectal 151 a clear anti corrosion compound, the feed point connections were coated with Tectal 506 a brown non-setting moth balling compound.

To keep feed line losses and weight to a minimum LDF450 coax was used from the feed point to the boom to mast clamp. This clamp used some 3 mm scrap flat sheet, which was on hand and was folded into a 'U' section so as to straddle the boom and allow the use of two standard TV type 'U' bolts and clamps. By using this method of assembly the boom was not weakened. The hangers for the stays/braces were bent from flat stock and were drilled to take 6.3 mm bolts fitted with a sleeve of

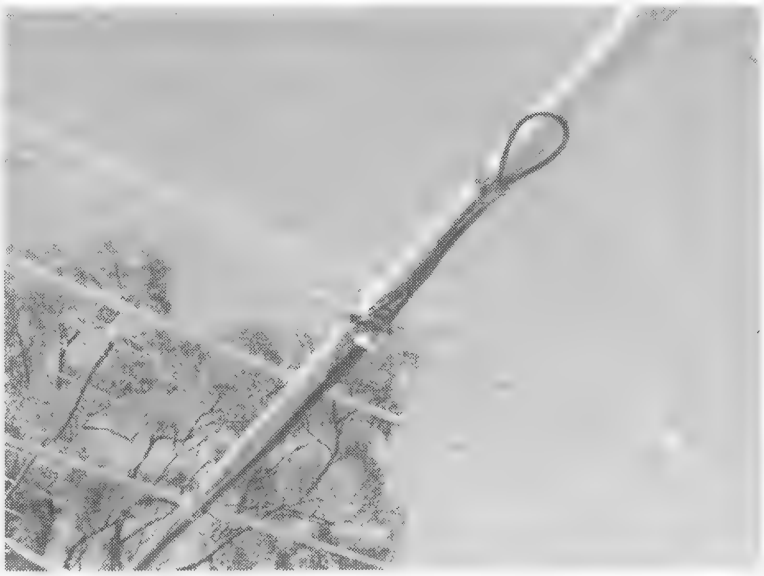


Photo 3 Driven element assembly

Photo 4 Hanger attachment

RS 20 Power Supply

Errata and Notes

Jim Tregellas VK5JST

There have been several emails concerning the RS 20 power supply. There were some errors in the circuit diagram and in response to a query on the 3055 transistors Jim Tregellas has provided information on the construction of various manufacturers versions of this device, "Oils ain't oils"

ERRATA

TIP2955 - incorrectly labeled TIP2995 on circuit.

1K5 - incorrectly labeled 1K8 on component overlay

1N4004s - incorrect polarities shown on circuit diagram

COMMENTS

BD139 - available in at least 2 pinouts. Substitute a TIP41C, which matches the component overlay and has only one pinout.

BC548 - available in at least 4 pinouts. Check with an ohmmeter to get the emitter- base- collector pinout required by the component overlay.

2N3055 - On the subject of 2N3055s versus TIP3055 or MJE3055, I selected the plastic flat pack version for the following reasons:

1. Only a single mounting hole to drill, which requires much less skill than the 4 accurately spaced holes necessary for the TO3 beast.
2. It is the same cost or cheaper than the TO3 depending on where you source it.
3. The TO3 has leads which pass *through* the heatsink inviting short circuits and other troubles.
4. The TIP3055 or MJE3055 is a modern device and uses a planar transistor dice, which, amongst other things, gives higher current gains, smaller junction capacitances and higher cut-off frequencies. As I pointed out to the original reviewer in response to his original criticism, I am aware, from my semiconductor manufacturing background that a lot of the TO3 2N3055s use an inferior internally soldered construction and hence the note. Millions of these devices were made in Mexico, Spain, Italy, the Philippines and other low labour cost areas and are notorious for causing unexplained oscillations in high power circuits. The only TO3, which I can recommend are 2N3055s, made by Motorola, which I know from personal examination, contain planar chip construction with all of its inherent advantages.
5. Any other TO3 should be treated with grave suspicion until the top of a sample device is removed for examination. Typical solder construction TO3 3055s have the following properties:
   - current gain (hfe) @ 4 amps as low as 5 (compared with a minimum of 20 for the planar device)
   - cut-off frequency (ft) @ 4 amps a few hundred kilohertz in comparison to 5-10 MHz for the planar device.

There are other subtle differences such as the base spreading resistance which is very much larger in the soldered construction, and larger junction capacitances which lower the cut-off frequency, increase internal feedback and consequently affect system stability. Such devices also exhibit large internal phase shifts at high frequency (Stability problems again)

Furthermore a lot of the devices manufactured never met industry standard specifications straight out of the factory. ***Moral:*** Use old TO3 2N3055s or 2N2955s and other similar TO3 power devices in amplifiers, power supplies or other high power environments at your peril. The design of this power supply assumes the current gains and other properties of a modern device and also assumes that the devices used meet their published minimum specs.

Hope this clarifies the questions that have been raised.

Jim VK5JST

My new beam...

(continued from previous page)

10 mm tubing. The boom was not drilled at these points as the bolts and sleeves are on the top of it; this allows some adjustment if required, but pulls up tight and locks in position when assembled.

Results

This new beam works as it should. The VSWR is below 1.1/1 at the normally used frequencies; with the improved F/B ratio and side lobe reduction, less noise is now picked up from unwanted directions resulting in a better S/N ratio on received weak signals.

Notes

All materials are locally available. Any would be constructor, feel free to contact me direct- on air, phone or email.

Recommended reading.

Amateur Radio, November 2001 page 7 & all reference articles mentioned in the appendix on page 8

ar

Announcing...

the 5th IARU Region 3

ARDF Championships 2003, Australia

The IARU Region 3 Amateur Radio Direction Finding Championships is to be held next year at Ballarat, a large provincial city in Victoria, Australia. It is to be hosted by the Wireless Institute of Australia (WIA) and will be held in the Ballarat area from Friday 28 November to Wednesday 3 December 2003.

The Victorian ARDF Group which is organising the event is expecting up to 100 participants from member societies in Region 3 including Japan, Korea, China, New Zealand, and Australia. Guest competitors from other IARU Regions are expected to also attend. WIA Victoria is sponsoring this important event and assisting the organising committee with financial backing.

The proposed program in 2003 is:

Friday 28th November: Arrival Day

Saturday 29th November: Equipment Check & Opening Ceremony

Sunday 30th November: 2m ARDF Competition

Monday 1st December: Tour Day

Tuesday 2nd December: 80m ARDF Competition & Closing Banquet/ Prizes

Wednesday 3rd December: Departure Day

Ballarat is a historic gold mining town in North Western Victoria, but is only about 1.5 hours travelling time from Melbourne Airport.

Transport will be provided from Melbourne Airport to the Mt. Helen Victoria University Campus, which is the event centre and accommodation. An amateur radio station will be provided on site for use by our visitors.

Entries will be available for both official Region 3 competitors and in the worldwide Friendship categories.

Team results will only apply for Region 3. A and B (2 teams of up to 3) will be allowed in any age/sex category (over and above this further Region 3 competitors may be allowed in the friendship only category if there are vacancies).

Some links you may wish to look at:

http://www.ballarat.com

http://www.ballarat.edu.au

http://www.ardf.org.au

Further enquires can be directed to Mr. Jack Bramham VK3WWW,

Federal ARDF coordinator,

Wireless Institute of Australia

vk3www@alphalink.com.au

ar

G. & C. COMMUNICATIONS

Authorised dealer for ✔ Kenwood ✔ Icom ✔ Barrett RFDS ✔ GME Electrophone ✔ Uniden ✔ RF Industries

WE MOVED !

But only just down the road to

207 High Street

(The South Gippsland Highway)

Cranbourne

In our new, centre of town facility we have more room, more stock, and can deliver even better service.

We now stock Pioneer, Kenwood AND and Clarion car audio.

We have a drive-in bay where we can fully fit any of your mobile communication needs!

Drop in, say G'day

World famous names in

HF and VHF

Amateur Transceivers

27 Mhz and UHF

CB Radios

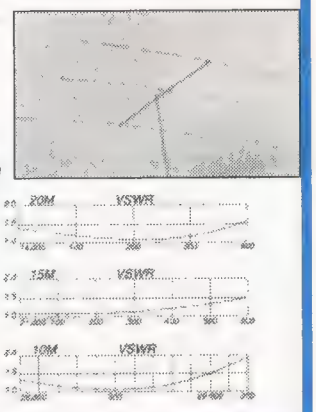
HF and UHF

LINEAR AMPLIFIERS

FULL RANGE OF EMTRON HF ANTENNAS

TE-33 3 element tri-band yagi antenna

The most popular tribander. Storm proved in the Pacific islands. Excellent performance. wide band-width, high gain, low SWR, high F/B ratio. Marine grade S/S h/ware. 6063T83 aluminium tube and specially machined heavy duty aluminium brackets.



Australia-wide orders welcome. Payment by credit card, cheque or money order

207 High St. Cranbourne 3977

Ph: 03 5996 3298 Fax: 03 5995 0184

Email: gccomm@netspace.net.au

www.netspace.net.au/~gccomm

ALARA

Christine Taylor VK5CTY
vk5cty@vk5tty or geencee@picknowl.com.au

Happy New Year!

Did you have a good New Year's Eve even if a cold and wet and windy one? Hope so, and hope the rain was welcome. It seems as if most parts of OZ had rain over the New Year period. For most of us, apart from making us change the plans for a barbie the rain was a good sign of a better year to come for our hard-pressed farmers. It is amazing how many people on the land have radio licences. A licence means you are able to "talk to the world" whenever you want to. It helps to share your worries and to realise that there are farmers in other parts of the globe experiencing hardship, too, and that the hard times are followed by the good times. Let's hope that is so for you, in 2003.

The problems of Christmas presents

Into this household came some expected and some unexpected Christmas presents, BUT, expected or not, some of them didn't fit the equipment we already had. It somewhat spoils the pleasure for the giver and the recipient if the present can't be used (or at least tried out) immediately.

I gave the OM a device to sharpen his drills - great idea, except that it won't fit on his existing drill. His present electric drill has done good service and it still works well and doesn't need to be replaced, BUT he will have to buy a new model as well if he wishes to sharpen his drills because the shape of the part that holds the drill bit has been changed and made longer and the new sharpener needs this longer shape. This is not just designed obsolescence. It is a change made simply to force us all to buy a new style electric drill.

He gave me a digital camera. A great idea, now the photos that 'missed the point' can be deleted so they don't need to be printed automatically. BUT, to print the photos myself I will have to have a USB port added to my computer. Why could not the digital camera have been made to plug into either a serial or a parallel port which I already have on the computer. Again, this is not simple designed obsolescence. It is new design intended to force us all to 'upgrade' our computer whether it is working well or not.

I think I could be said to have made sufficient upgrades. Starting with a Vic-20, then a C64 followed by an XT (I missed the AT) and a 368, then a 468 which is now a Pentium - I had resisted some changes, as can be seen. How many more times will I be forced to upgrade just so that I can use the new devices. Surely they could accommodate me instead.

Do you think we could boycott the manufacturers to force them to allow some of us to be faithful to our tools that have served us so well? I wonder?

A report from Gwen VK3DYL about that DXpedition

YLs in the South Pacific

Following on our very successful YL DXpedition to Norfolk Island two years ago, we decided to try Lord Howe Island and the South Cooks for two more trips. Operators were Elizabeth VE7YL (CW), June VK4SJ, Mio JR3MVF and myself, Gwen VK3DYL. Our "Gofer" and general handyman in moments of crisis was again Doug, VK4BP, while Raija SM0HNV, was with us on Lord Howe for the first week.

Lord Howe is a crescent shaped World Heritage listed island 800 km N-E of Sydney. Two tall mountains dominate the southern end of the island while a surf-fringed coral reef encloses a turquoise blue lagoon and white sandy beaches. With Kentia palms, tropical forests, rare birds, fish and flowers, this was the exotic site of our YL DXpedition's first stop.

We planned the trip around the Equinox when DX conditions were supposed to be at their best but the weather didn't take much notice of that! Wind and rain in abundance. However, Mio and I managed to find one fine day to go up for a scenic flight round the island and out to Ball's Pyramid, a needlelike protuberance sticking up out of the sea. The flight in the little Cessna was superb with fantastic views of the island and lagoon.

Equipment-wise, Murphy came with us. Elizabeth's automatic morse keyer broke down between Canada and Australia and refused to send the letter Q. This was extremely awkward when she wanted to call CQ – hi! The radials of June's Turlin got chopped up by the ride-on mower and a couple of pieces of equipment emitted smoke at odd times. Elizabeth and I claim the record for the fastest dipole changers in the South Pacific though there is still a stone and some string lodged in a certain palm tree. We made 5,441 contacts using the callsign VK9YL obtained for us by the WIA Vic. Div.

Internet had just been installed at the local Museum but it was having teething problems finding the satellite at times. The rest of the island was much as I remembered it from 40 odd years ago – the main difference being that the planes now landed on terra firma instead of flying boats coming down in the lagoon. Such is progress!

After an overnight stay in Brisbane, we took off again for the Cook Islands N-E of New Zealand. The Cooks comprise 15 tiny islands scattered over 2 million square km. of ocean and, for radio purposes, are divided into North and South Cook – we went to the latter and

visited the islands of Rarotonga and Aitutaki. We were welcomed at the Raro Airport (at 1 am) by Vic ZK1CG, with armfuls of beautifully scented leis. Great!

On Aitutaki, half the group stayed at *Gina's Garden Lodges* run by Des, ZK1DD, and his XYL, Queen Manarangi ("just call me Mrs. Clark!"), whilst Mio and I stayed at a motel on the edge of the lagoon. Sitting under a thatched roof shelter and being served breakfast of tropical fruit whilst gazing at the fish jumping in the lagoon and crabs chasing each other across the sand, was a life I could easily have become accustomed to. Apart from the mosquitoes. It was interesting driving through the interior of the island dodging chooks, goats and pigs, all running wild plus the locals all riding round on their motor scooters. There were a lot of derelict houses and most families had their ancestors "planted" in their front garden, some with most elaborate shrines. Doug and June went snorkelling on the reef and were thrilled with the fish they saw. After a week of this ideallic existence (and making 3,241 contacts), we returned to Rarotonga where we again set up our antennas. Our arrival broke the local drought, so much so that we had to buy umbrellas!

Raro is a bustling metropolis compared to Aitutaki with lots of souvenir shops, restaurants, motor scooters for hire and, everywhere you looked, shops selling locally-dyed sarongs and the famous black pearls. Again the world was waiting for us and we had lots of dogpiles to deal with. Elizabeth's keyer (functional again) worked overtime whilst the rest of us ended up with hoarse voices. We managed to work another 4,075 contacts, making a total for the whole DXpedition just over the 12,800 mark. A lot of QSL cards to deal with – hi!

de Gwen, VK3DYL. (For extra pictures, check my web site: www.qsl.net/vk3dyl)

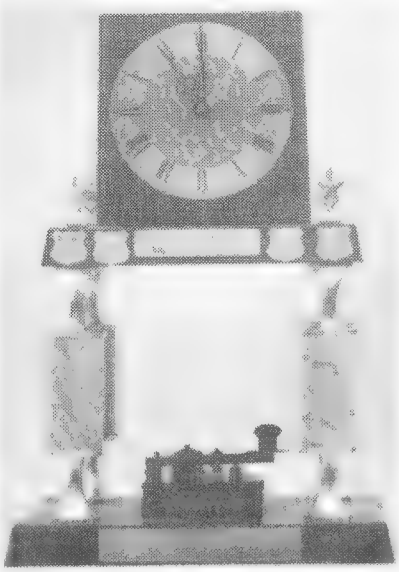
Now it is up to you to apply for those QSL cards

The ALARA Contest

The full results of the Contest were printed in the Dec/Jan issue of AR but the members of ALARA wish to congratulate all the section winners.

We were especially pleased to be able to award the Florence McKenzie Trophy to Pat VK3OZ at the ALARAMEET in Murray Bridge. Only a few times in the life of the Contest has the winner of this special trophy actually been presented with it. The trophy is rather large and rather awkward to package for postage so the winner usually receives only a certificate with a photo of the trophy.

Florence McKenzie was the first YL amateur in Australia. She held the callsigns of VK2FV with which she was active for many years. She was an electrical engineer and a fully licensed electrician, again the first young lady to hold such a licence. With her husband she ran a very successful electrical and electronic shop in Sydney. During WW2 she taught thousands of young men and women to become Morse Code operators. She was instrumental in persuading the then Minister for the Navy, Billy Hughes, to employ women as radio operators, thus releasing many young men to serve in more active roles.



The Florence McKenzie Trophy

Club News

Adelaide Hills Amateur Radio Society

The end of the year is always hectic for members of AHARS with many members helping WICEN to provide communications for the Classic Adelaide Car Rally in early November, our own "Buy and Sell" toward the end of November and our Christmas Dinner in December, but attendance at all of these activities was enthusiastic.

The last meeting for the year at Blackwood High School was also enjoyed very much. Members came along armed with soldering irons, 'third hands' and magnifying glasses, prepared to make up a device from components supplied by Graham VK5ZFZ. This year it was a 'crystal set' with an IC based two-stage audio amplifier, which must have worked if the expression on the face of Jim VK5JST is correct.

In January, the club meeting is an informal barbecue as the school premises are unavailable, but visitors are welcome for all normal meetings.

If you are in Adelaide on the 3rd Thursday of a month please contact either Geoff VK5TY or Alby VK5TAW for details of the venue and the topic for the night.

Jim VK5JST

Beyond Our Shores

davpil@midcoast.com

Good numbers in the USA

The numbers are in and they speak for themselves. Restructuring is finally having a very positive impact on ham radio growth in the United States. Amateur Radio Newsline's David Black, KB4KCH, has the good word: First, the General and Extra class have increased substantially since the 13 and 20 word per minute Morse code exams were eliminated April 15th of 2000. In fact, the number of people holding these licenses has increased by well over 25,000 for each license class. And that's great news for ham radio equipment suppliers since they rely on higher dollar high frequency transceiver sales for much of their yearly income. The Technician class is holding its own, too. The number of new Tech license holders is keeping pace with the number of hams either upgrading or dropping out of amateur radio. The net change is close to zero. The bottom line is that for the last 12 months ham radio has seen an average of 16-hundred brand new ham licenses issued each month. That's an improvement of 160 a month over the previous year. And that improvement is very good news for ham radio.

(W5YI via ARNewsLine)

Digi Radio Experiment

Ham radio has been asked to be a part of an important digital radio experiment. Bill Pasternak, WA6ITF, has the details: "Digital Radio Mondiale, or DRM, is a project aimed to revitalise the short-wave, medium-wave and long-wave AM radio broadcast bands. This, by using digital signals to provide near-FM quality. Radio Amateurs and serious broadcast-band listeners have been invited to become part of the DRM Software Radio Project. They may also be among the first to access the initial DRM programs when test transmissions begin next month. James Briggs is the DRM Projects Co-ordinator with Merlin Communications in Dorset England. Biggs says that the project relies on adding an extra down-converter board to existing receivers and then using software to decode the signal via a PC soundcard". To find out how you can play a part in the DRM experiment take your web browser to www.drmrx.org

(Media Network via ARNewsLine)

Ham frequencies

Seventy-five years ago, in 1927, an International Telecommunication Union Conference in Washington established internationally-agreed frequency bands for radio amateurs, the harmonically-related bands. These bands came into use in 1929. Let's keep them clean and enjoy the privileges.

The Golden Antenna

Each year the town of Bad Bentheim in Germany presents the 'Golden Antenna' Award for outstanding humanitarian deeds involving Amateur Radio. The recipient of the 20th Golden Antenna Award was Eric Mackie, 9Z4CP, from Trinidad and Tobago. He received it for his part in the rescue of the skipper of a Swedish sailing boat that was in distress of the coast of Venezuela when it was attacked by pirates who shot the skipper. After the pirates left, his wife managed to call on Amateur Radio. Eric took the call and arranged for the skipper to be taken to the St. Clair Medical Centre in Trinidad for treatment.

Nominations are now being taken for 2003. If you wish to nominate someone, contact Stadt Bad Bentheim, PO Box 1452, D-48445 Bad Bentheim, Germany or e-mail to jueriens@stadt-badbentheim.de

(RSGB Nov RadCom)

ITU says 'yes'

Marrakesh, 27 September 2002 — The International Telecommunication Union announces the Youth Education Scheme (YES), a project to assist talented young people to continue their university studies in telecommunications.

ITU, in partnership with leading companies will provide scholarships for young people who demonstrate that they are at the top of their university classes and who require financial assistance to complete their degrees. Assistance will be given in the form of tuition, preferably to complete a degree already initiated at a local institution.

"There is a serious need for human resources from a wide variety of competencies and specialities to manage and utilize telecom technologies and services for bridging the digital divide," said Hamadoun Toure, Director of the ITU's Telecommunication Development Bureau. "Every unfinished degree in telecommunications spells the loss of a capable mind to the sector. YES is an expression of a positive and assertive stance by ITU in support of needy and deserving young people wanting to carve out a career in communications", Touré added.

A screening process and procedures for YES will be strictly adhered to, including direct payment of tuition fees to the universities upon receipt of invoices.

The initiative is one way that ITU's Telecommunication Development Sector is integrating youth issues into its activities, including programmes with emphasis on capacity building. Resolution 38 of the World Telecommunication Development Conference 2002 also requests the Secretary-General of ITU to bring issues relating to youth and ICTs to the attention of the Plenipotentiary Conference 2002, currently in session in Marrakesh. This is being done with a view to raising appropriate resources for youth-related activities and functions.

More information on YES will be made available to interested organizations that wish to include assistance to youth in their social responsibility chapter.

More information on YES can be found at www.itu.int/ITUD/hrd/yes/index.html

(ITU Web site)

Ron Smith VK4AGS, Federal Education Co-ordinator
r.g.smith@cqu.edu.au

Proving worth

One of the discussions around at the moment relates to whether there is a need for a third level of entry into amateur radio. While personally I believe there is, such discussion raises the question of a much bigger issue which relates to syllabi, training and education courses, and the system to be used for a person to demonstrate they have the necessary knowledge and skills to enter amateur radio.

Over the lifetime of the now quite old current syllabi and exam system, technology (including the electronic technologies) has at least doubled. Additionally, if only one of the new computing technologies now in the research laboratories becomes a commercial reality then all current computing technology in shacks, households and businesses worldwide will become redundant by 2012.

Educational technology has also developed, particularly, but not uniquely, in the school systems and smaller universities. In many ways Australia leads the world in educational technology and methodologies. On the other hand, Australia also has institutions and educational systems that have not embraced the new educational technologies.

Of the many issues here at a coal face level, the rewriting of syllabi in a more generic style and the nature of "proving worth" systems needs to be addressed.

Over the coming few issues I will explore different types of "proving worth" approaches. I will not advocate any particular approach as they all have their strong and weak points. However, some are certainly more educationally accurate that others. Some focus more on understanding while others favour shallow or surface learning, which is not strongly supported in education but unfortunately happens, even unknowingly. The information to come will be useful in discussions about updating education technology in amateur radio and making it amenable to future developments in both the electronic and educational technologies.

A very important early point to consider is that all educational assessment involves the same complex series of decisions. These may be taken in a different order in different systems but the decisions are always the same. Some of the decisions are subjective or opinion and some are objective. For example, with the current system where 70% is the pass mark the objective decision is to pass somebody with 78%. One subjective decision is setting the 70% as the pass mark in the first place. This 70% is an opinion. We just cannot escape subjectivity or opinion.

Additionally, we cannot avoid having to trust people with the implementation of the system. We can have as many complex legalistic procedures in place as we like but somewhere there is a step, which involves trust. Where this step is depends on the system.

The "proving worth" approaches I will look at in the coming issues will include multiple choice examinations, essay or extended answer examinations, assignments or projects, mentor or teacher opinion, course work, and portfolios. It is also worth considering combinations of these.

More later.

***Beyond Our Shores* continued**

First Amateur Transatlantic HF Digital Voice QSO reported

Radio communication pioneers Ten-Tec and Thales have announced that they've used an amateur radio linkup to span the Atlantic on HF digital voice for the first time. Ten-Tec's Doug Smith, KF6DX, and Thales' Didier Chulot, F5MJN, successfully transmitted and received HF digital speech signals November 22 between Paris, France, and Ten-Tec's Sevierville, Tennessee, headquarters.

"Amateur radio has long been at the forefront of technological development," said Smith. "It's nice to be able to show that our legacy is alive and well." Tests are being conducted under the auspices of ARRL's Digital Voice Working Group, which Smith chairs. A written report on the tests is due in January.

Calling it "a major breakthrough," a Ten-Tec news release said the two amateur stations "demonstrated the advantages of digital audio during the conversation, including noise-free, FM-like reception and the potential for simultaneous voice and data." The feat was accomplished on 15 metres using Ten-Tec transceivers and Thales Communications Skywave 2000 digital audio software. Operating as F8KGG, Chulot spoke with Smith for several minutes over the HF digital link, operating within a 3-kHz bandwidth.

Smith said he and F5MJN used unmodified Ten-Tec transceivers in upper-sideband mode, although AM or FM mode also would work. No additional hardware was required beyond the cables connecting the transceiver and the microphone to the PC sound card. Smith said audio quality was roughly the same as a conventional telephone circuit. An amateur radio version of the Thales system is expected to appear on the market early next year.

In terms of amateur radio, Alinco was the first manufacturer to come out with a digital voice option for some of its transceivers. ICOM debuted its D-Star digital "concept radio" system last May at the Dayton Hamvention—where Smith chaired the Digital Voice Forum—and demonstrated it at the ARRL-TAPR Digital Communications Conference in September. The unit, which operates on 1.2 GHz, was scheduled to hit the ham radio market this fall.

Technical details of the Thales system are available from

http://www.arrl.org/tis/info/pdf/x0301049.pdf.

(ARRL N/L)

Technical Abstracts

Gil Sones VK3AUI
230 Moore Street, Box Hill South Vic 3128

Common Faults and Cures

An interesting item appeared in the Technical Topics column of Pat Hawker G3VA in Rad Com October 2002 which came from Harry Leeming G3LL. Harry Leeming G3LL was involved in servicing amateur radio equipment for many years. The following comments from Harry refer to common and intermittent faults.

Intermittent Faults . These can be very time consuming. Often the best approach is a few prods and pokes in likely areas.

Dirty Contacts. Controls and switches are largely self cleaning if they are used regularly. But the never or very seldom used switch or control that is tucked behind the back of the rig or, even if at the front, is a common source of trouble.

Relays. A common cause of intermittents. Removing the case and gently poking at the contacts with an insulated tool will usually if this is the trouble. Be sure to clean them with a cleaner free of lubricant, such as video head cleaner.

Plug In Circuit Boards. Another weak link, especially if the socket and contacts on the boards are made from different metals. G3LL found that gold plated memory and non gold plated sockets on computers needed cleaning every couple of years.

Crimped Connections in Plugs. These tend to start becoming troublesome after 20 years or so, and are a common cause of faults on the FT707.

Intermittent dry or broken joints. These cannot be blamed on smoking , but often occur where a largish component , such as an audio output or regulator IC , is clamped onto the chassis and soldered to a PCB with resultant movement between the two as the board flexes.

The first five problems are are much more likely to occur where the owner of the rig smokes. G3LL reckoned that while he was in business a third of his repair income came from undoing the faults caused by cigarette smoke .

G3LL found that often the most difficult aspect of fault tracing is obtaining the complete story of what has happened from the customer. Write everything down and attach a note to the rig with a day time telephone number . The better the information , the quicker the fault will be to fix, and the less the cost of the repair

GW4ZXG Remote Tuner

A simple means of adjusting a tuning stub on a quad antenna devised by Louis Thomas GW4ZXG appeared in the Antennas column of Peter Dodd G3LDO in the August 2002 edition of Rad Com. The tuner used a modified bulldog paper clip as an adjustable short for the tuning stub. The antenna was a diamond quad with the stub located on the lower end of the fibreglass reflector element support. The idea could be used on other antennas if a suitable stub support were provided.

The tuner is shown in Fig 1. The bulldog paper clip clamping spring is drilled to pass the stub wires. An egg insulator is used as a pulley for the upper adjusting cord. Nylon cords are used to move the sliding clip which acts as a moveable stub shorting bar up and down along the stub. The stub can be adjusted with the antenna at full operating height. Once the correct length is found a more permanent stub can be used.

When adjusting the stub either a remote signal source or a remote field strength meter can be used. The aim is to adjust the stub for either maximum gain or for maximum front to rear ratio. The gain approach whilst attractive may not be as good as having minimum signal off the rear of the antenna. The rejection of unwanted signals and noise may be more important than a fraction of a dB of forward gain when making difficult contacts.

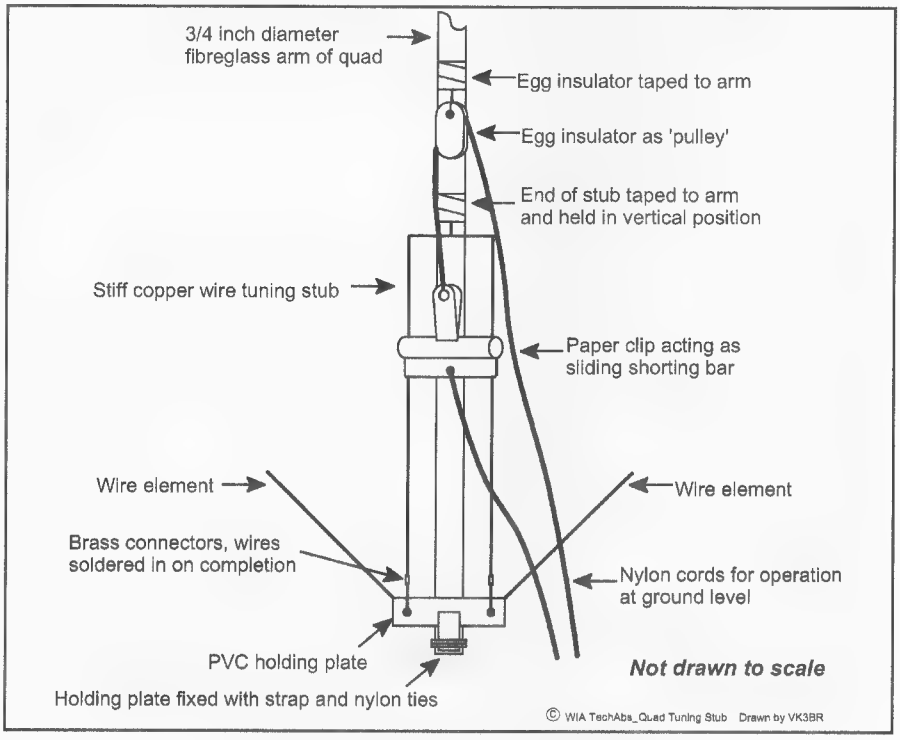

3/4 inch diameter fibreglass arm of quad
Egg insulator taped to arm
Egg insulator as 'pulley'
End of stub taped to arm and held in vertical position
Stiff copper wire tuning stub
Paper clip acting as sliding shorting bar
Wire element
Wire element
Brass connectors, wires soldered in on completion
Nylon cords for operation at ground level
PVC holding plate
Holding plate fixed with strap and nylon ties
Not drawn to scale
© WIA TechAbs_Quad Tuning Stub Drawn by VK3BR

Fig 1. GW4ZXG Remote Tuning Slider.

Quiet Antenna Tuner

A different form of quiet antenna tuner was published in QEX May/June 2002 by Tony Lymer GM0DHD. The idea was to use a different configuration of a type of SWR meter as a quiet tuner. The idea is to use a dual directional coupler of the type used in "The Tandem Match" of John Grebenkemper KI6WX which is featured in recent ARRL Handbooks and to simply swap two connections. The principle was described by Underhill and Lewis in Electronic Letters 4 Jan 1979. The coupler used was patented by Sontheimer and Frederick (US patent 3426298) in 1969.

An SWR meter using a dual directional coupler is shown in Fig 2. By rearranging this the SWR meter can be converted into a quiet tuner as is shown in Fig 3. The connection of the reflected power termination and indicator has been swapped with the transmitter. You should note that one of the dummy loads, the forward power one, must be capable of dissipating the full transmitter power. In the configuration shown in Fig 3 the power radiated while tuning is reduced from 100 watts to just 1 Watt. This is for 20 dB coupling in the dual directional coupler. For a 30 dB coupler the radiated power would be 10 db less. The radiated signal during tuning is much reduced hence the Quiet Tuner name.

A more practical quiet tuner is shown in Fig 4. Here the transmitter input to the coupler block and the reflected power termination and metering are swapped with a switch between the operate and the Quiet Tune positions. This is shown for low power operation and for higher power use an appropriate termination would need to be used for the dummy load in particular. The resistor in series with the meter could be replaced with a potentiometer to allow adjustment of full scale reading. With a 20 dB coupler a dummy load capable of dissipating full legal power would be needed and the termination of the reflected power would need to be able to dissipate $1/10$ of the full power. This means either 120W and 1.2w terminations or 400W and 4W terminations for tuneup at full single tone power.

The article included a suitable coupler for use at the 5 Watt level and this is shown in Fig 5. The core used is a Fair Rite 2843000302. Similar cores of type 43 material μ=850 or near equivalents may be used. The windings are 12 turns of 30SWG/28AWG enamelled copper wire and the single wire windings are 26SWG/25AWG. The coupling factor is given by 20log (N) where N is the number of turns. 10

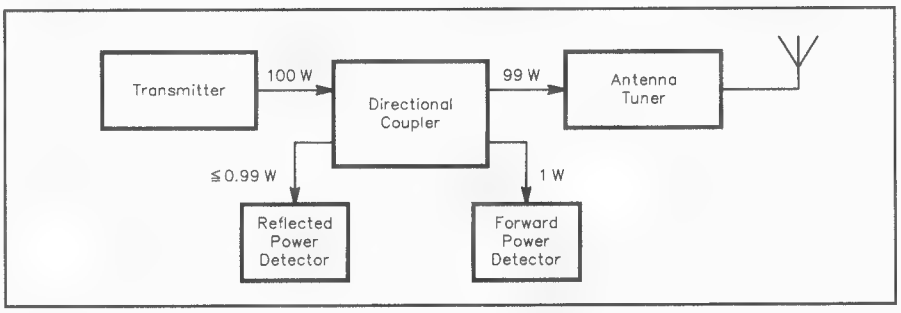


Fig 2. Conventional Dual Directional Coupler SWR Meter.

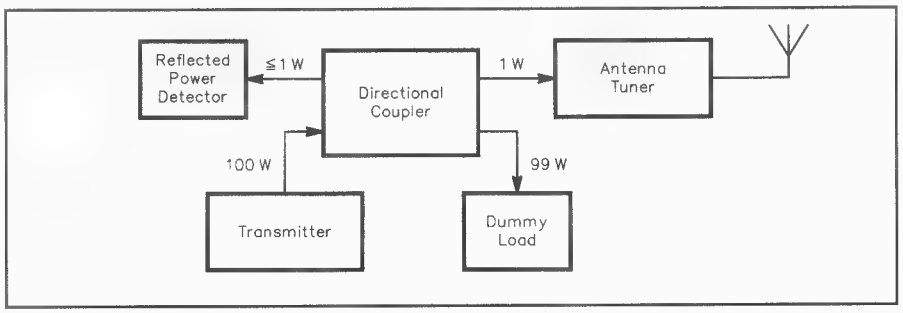


Fig 3. SWR Meter converted to Quiet Tuner.

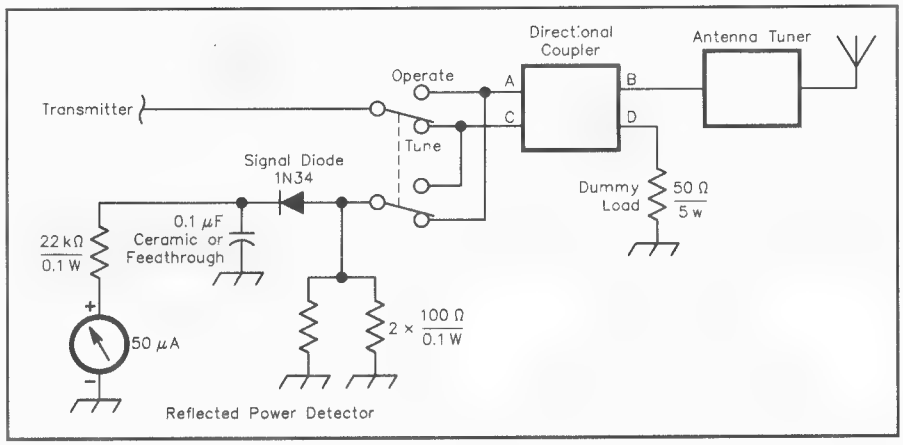


Fig 4. Quiet Tuner Schematic.

The performance of the coupler of Fig 5 is shown in Table 1. The performance was measured with an Agilent 8753C network analyzer. Performance is adequate to 50 MHz but drops off at 146 MHz.

An alternative high power coupler is shown in Fig 6 and is derived from the one shown in the Tandem Match article in the ARRL Handbook by John Grebenkemper KI6WX with further work by Zack Lau KH6CP published in QST April 1988 and also a letter by Frank Van Zant KL7IBA in July 1989 QST.

The toroids used are T-68-2 powdered iron toroids. The windings are 40 turns of 26 to 30 gauge enamelled wire spread

Australian Made

ANTENNAS

"Setting a New Standard"

COM-AN-TENA

(Formerly a j and j coman)

6 Muir Court
CHELSEA HEIGHTS 3196

All new 5/8 vertical 16 radials	$145
Dual drive 26-30 5 ele yagi beam	$305
4 ele 10-11m yagi beam	$262
5-6-&7 ele high gain antennas 11m	$call
3 ele delta loop 10-11m	$320
11m 5/8 vert./4-1/4 wave radials	$170
Duoband 10-15 3 ele each band	$356
Tri-band 5 ele HB35C s/steel fix	$730
3 ele 20m computer opt	$390
3 ele 15m computer opt	$285
M B Vert Auto switch 10-80m	$310
40m linear loaded 2 ele beam	$580
6m 5 ele compt opt beam	$259
6m 7 ele compt opt beam	$355
10 ele high performance 2m	$135
17 ele high performance 70cm	$119
2m vert 2-5/8 co-linear 4 rad	$ 96
Log-periodic 7 ele 13-30 MHz 7.7m boom	$890

Guyed Masts

21 metres **13 metres**

Winch-up & tilt-over. Aluminium and stainless steel three-sided construction. Auto-brake winches.

Free Standing Masts

9.5 metres

New Baluns

1-1 to 16-1 to 3kW

Our Masts
meet
Australian Standards.
We supply all the computations and data you will need for
a permit.

03 9773 3271

Mob: 0419 542 437

Andy VK3IV

evenly around each core. The lines forming the primary windings are RG8/RG213 with the PVC jacket removed. The braid is insulated by winding Teflon tape over the braid which allows them to be slipped into the toroids.

Table 1.Performance of Directional Coupler of Fig 5.

	1.8 MHz	50 MHz	146 MHz
Through Path Loss	0.14 dB	0.09 dB	0.12 dB
Coupling Factor	-21.6 dB	-21.7 dB	-21.6 dB
Directivity	31 dB	31 dB	17 dB

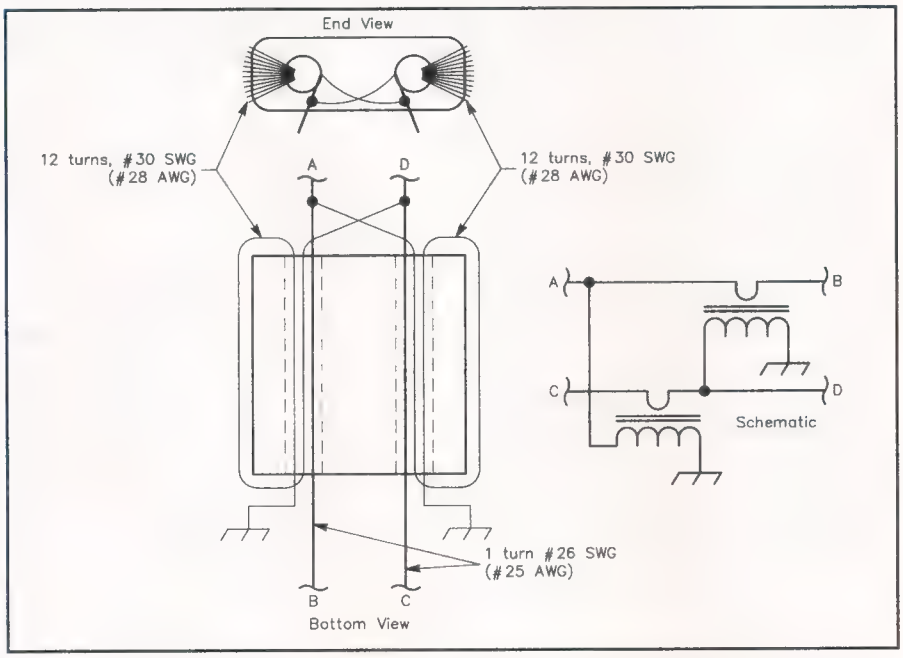


Fig 5. Directional Coupler for Low Power.

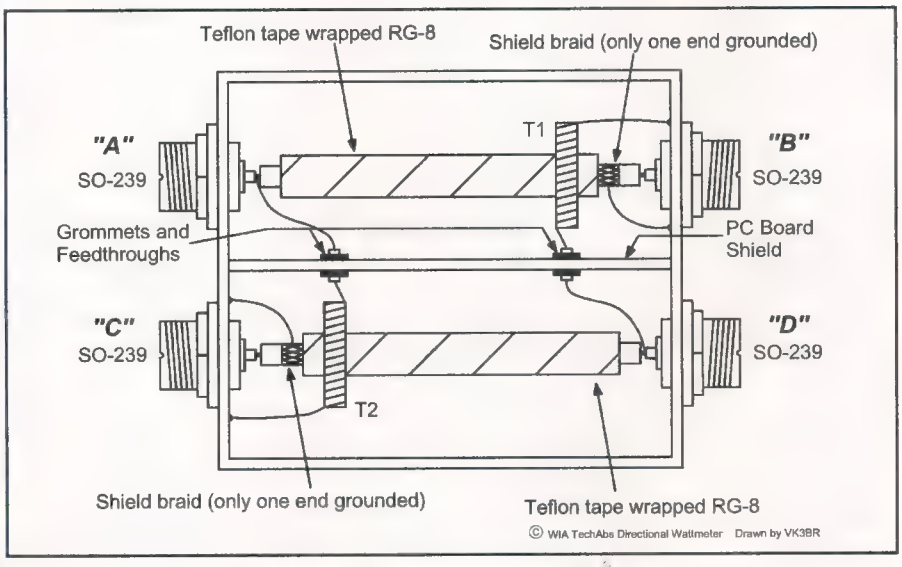


Fig 6. High Power Directional Coupler.

Amateur Radio

By subscription with your WIA membership,
or now in your newsagent

M0BMU LF Loop

In the LF column of Dave Pick G3YXM in Rad Com July 2002 an interesting loop for 136 kHz reception was described. The loop was the work of Jim M0BMU and it has the tuning components and the loop amplifier in the shack safe from the elements.

The loop consists of a single turn of insulated wire outside with an enclosed area of 20 square metres. This could even be a wire thrown over a small tree. The ends are connected to a coaxial cable running back to the shack where the cable is connected to a high Q coil and tuning capacitor. A low noise preamp with good signal handling capability is used to boost the signal. The bandwidth of the loop is broad enough to allow coverage of the UK 136 kHz band.

The loop is shown in Fig 7. The loop is 2m high by 10m long for an area of 20 square metres. The shape of the loop is not critical. The transformer used is a 1:1 design wound as 30 bifilar turns of 32 SWG on an RM6 potcore. (RS Components 2318735)

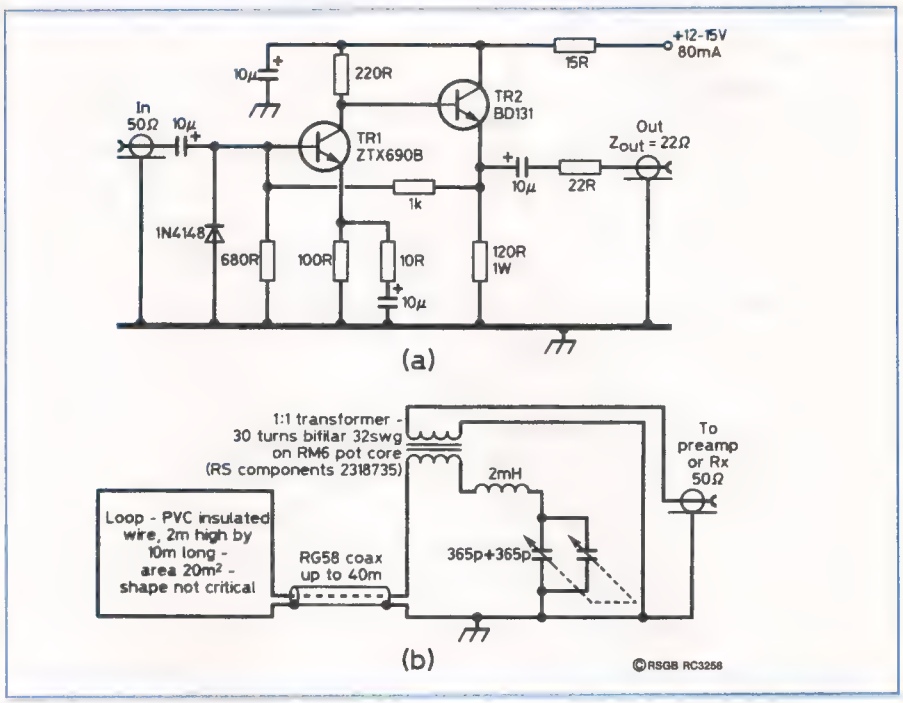


Fig 7. M0BMU Receiving Loop and Amplifier.

Cable and Connectors

Belden

- RG58C/U Belden 8259 @ $0.90 per metre
- RG213/U Belden 8267 @ $4.45 per metre
- RG8/U Belden 9913 Low Loss @ $5.15 per metre
- RG8/U Belden 9913F7 High Flex Low Loss @ $5.55 per metre
- RG8/U - RF400 Belden 7810 Low Loss Sweep Tested to 6000MHz @ $6.30 per metre

LINK

- RG58: B80-006 UHF connector (M) @ $7.65 each
- RG8/213: B80-001 UHF connector (M) @ $8.80 each
- RG213: B30-001 N connector (M) @ $9.10 each
- RG8: B30-041 N connector(M) @ $14.00 each

connektron Pty Ltd

ABN 19 413 484 007

email sales@connektron.com.au or Phone (03) 9761-5220

connektron Pty Ltd, 45 - 49 Merrindale Drive, Croydon South, Victoria 3036

www.connektron.com.au

* All prices include GST
* Minimum order value $50 payable by Visa, Mastercard, Bankcard or Money Order
* Packing and Delivery $15 within Australia (Outside Australia P.O.A.)

The 2002 Amateur Radio INDEX

Title	Author	Issue	Page
Book Review			
Book Review New Guinea Engineer		November	2
New Guinea Engineer Les Bell M.B.E	Gillian H Shadbolt	October	11
The Dick Smith Way by Ike Bain	Peter Parker VK3YE	December	51
Contests			
Australian Contests 2002	Ian Godsil VK3VP	January	41
Contest Results			
21st ALARA Contest Results		February	45
ALARA Contest Results	Marilyn VK3DMS	December	48
CQ WW DX Contest 2001 Results VK/ZL		March	42
CQ WW WPX CW Contest 2001 Results		August	42
CQ-M DX Contest VK Results 2001		February	41
Harry Angel Sprint Results 2002		August	42
Harry Angle Sprint 2001 Results		February	46
IOTA 2002 Results		August	42
Jack Files Contest 2002 Results	John Spooner VK4AJS	November	41
John Moyle Field Day 2001 Results		February	41
John Moyle Field Day Contest Results	Eric Fittock VK3NEF	November	42
NZ Memorial Contest Results (VK only)	Stan White ZL2ST	November	42
Pacific 160 metre Contest 2002 Results	Ian Godsil VK3VP	October	42
Remembrance Day Contest 2001 Results	Alek Petkovic VK6APK	January	42
Remembrance Day Contest 2002 Results	Alek Petkovic VK6APK	December	49
Results ANARTS RTTY Contest 2002	Ian Godsil VK3VP	December	46
Results Digital Modes Contest 2002	Ian Godsil VK3VP	December	46
Results Novice Contest 2002	Ian Godsil VK3VP	December	46
Results Oceania DX Contest	Ian Godsil VK3VP	December	46
Ross Hull VHF Contest 2001/2002 Results	John Martin VK3KWA	July	42
Spring VHF-UHF Field Day 2001 Results		March	43
VHF Summer Field Day 2002 Results	John Martin VK3KWA	July	41
VK / trans Tasman Contest 2002 Results		August	42
Waitakere Sprints 2002 Results	Alex Learmond ZL1BVK	November	42
Contest Rules			
65 Commonwealth Contest 2002 Rules	Ian Godsil VK3VP	January	41
80 m Dash for the Wadda Cup	Vince Henderson VK7VH	September	20
ALARA Contest 2002 Rules	Marilyn Syme VK3 DMS	June	45
Asia-Pacific Sprint 2002 Rules	Ian Godsil VK3VP	May	40
Harry Angel Sprint 2001 Rules		March	42
Jack Files Contest 2002 Rules	John Spooner VK4AJS	June	42
John Moyle Field Day 2002 Rules		February	43
Novice Contest 2002 Rules	Ian Godsil VK3VP	May	40
NZART Sangster Shield 2002 Rules	Ian Godsil VK3VP	May	42
Oceanea DX Contest 2002 Rules		August	43
Pacific 160 metre Contest 2002 Rules	Ian Godsil VK3VP	June	42
QEII Jubilee Contest Rules	Dave Lawley G4BUO	April	44
QRP Day Contest 2002 Rules	Ian Godsil VK3VP	April	43
Remembrance Day Contest 2002 Rules	Alek Petkovic VK6APK	June	43
Ross Hull Memorial VF-UHF Contest 02/03	John Martin VK3KWA	November	43
Rules Summer VHF-UHF Field Day 2003	John Martin VK3KWA	December	47
Russian DX Contest 2002 Rules		February	45
Seanet Contest 2002 Rules	Ben Koh VK6XC	July	43

The 2002 Amateur Radio INDEX

Title	Author	Issue	Page
Spring VHF-UHF Field Day 2002 Rules	John Martin VK3KWA	October	43
TARA PSK31 Rumble 2002 Rules		March	42
VK/trans-Tasman Contest 2002 Rules	Ian Godsil VK3VP	May	42
World -wide WPX Contest 2002 Rules		February	44
DXpedition			
Langkawi AS-068. A Holiday Soiree	Johnny Melvin G3LIV	February	13
Education			
Dare we try for a new entry level ?	Brenda Edmonds VK3KT	June	46
Examination review	Brenda Edmonds VK3KT	February	24
Novice Cram Course - A review	C.Low, B. Edmonds,C. Taylor	October	15
Novice Cram Course. Ron Bertrand Reply	Ron Bertrand VK2DQ	October	17
General			
1st VK Phone contact with ISS	Jim Linton VK3PC	January	11
2 ARISS schools in one day	Tony Hutchison VK5ZAI	July	52
5 MHz experiment is underway	David Pilley VK2AYD	September	40
A Cradle for Portable Tranceivers	Peter Parker VK3YE	April	10
ALARA AGM Office bearers	Christine Taylor VK5CTY	June	20
Amateur Radio in Pakistan	Brenda Edmonds VK3KT	December	17
Amateur Radio Index 2001		January	17
Amateur Radio Station records	Jim McLachlan VK5NB	September	25
Amateur Radio Survey		May	29
AMSAT-NA Chief visits VK	Jim Linton VK3PC	April	12
Bordertown Primary School contacts	Tony Hutchison VK5ZAI	July	16
Car rallies in Tasmania and South Ausralia	C.Low VK5UE,R. Finlayson	September	17
Clandestine communication equipment	Stephen P. Hart VK5HA	May	22
Classification of Emissions	Henry Andersson VK8HA	February	46
Classification of Emissions : Episode 4	Henry Andersson VK8HA	March	7
Classification of Emissions Episode 2	Henry Andersson VK8HA	January	21
Classification of Emissions: Episode 3	Henry Andersson VK8HA	February	46
Complaint about Radio Pyongyang	B. I. Manohar	March	56
Computer Viruses	Alan Gibbs VK6PG	April	46
Computers in the Shack as a Log Book	Neville Mattick VK2QF	March	14
Current Operational Satellites 6 month	Bill Magnusson VK3JT	December	40
Digital Cameras	Will McGhie VK6UU	April	39
Digital Modes	Alan Gibbs VK6PG	February	47
DX Clusters	Alan Gibbs VK6PG	November	39
Early Experiments - Radio for RFDS	Rodney Champness VK3UG	March	16
EMR Limits further delayed	Jim Linton VK3PC	July	17
FCC proposes two new amateur bands.	David Pilley VK2AYD	July	28
Free Passages to Tasmania	Ron Churcher VK7RN	September	25
From Z(Zeehan) to A(Astronaut) and back	Dick Van Beck VK7KVB	May	18
GASS	Jim Linton VK3PC	September	31
Grid Square Standings at 30 August 2002	Guy Fletcher VK2KU	October	30
How I got my licence-40 yrs to VK-me	Adam Trumble VK3PPP	September	24
How to reverse the direction of a	Phil Derbishire VK2FIL	August	11
How to submit material to AR		November	55
International Lighthouse/Lightship	Mike Dalrymple GM4SUC	July	22
International Pharmacists Ham Group	Andrea Pagliula IZ7ECB	October	7
Intruder Watch July 2002	Henry Andersson VK8HA	September	42
Inverters Modified and Pure Sin Wave	Will McGhie VK6UU	November	52
IRLP VK and ZL Nodes September 2002	David Byrne VK3DRB	October	50
IW Monitoring Systems	Henry Andersson VK8HA	December	55
Junked Crystals make A Tree-Top Tester	Steve Mahoney VK5AIM	April	11

2002 Amateur Radio INDEX

Title	Author	Issue	Page
Learning morse code	Alan Gibbs VK6PG	December	43
Licence fees go up		July	17
LIPIDS	Will McGhie VK6UU	January	13
Log Keeping	Alan Gibbs VK6PG	September	34
Low level Entrance Licence	Brenda Edmonds VK3KT	December	51
More Interesting Pre War QSLs	Ken Matchett VK3TL	August	17
Morse Sending made easy	Neville Mattick VK2QF	March	13
Morseman - Morse Trainer (NZART)	David Pilley VK2AYD	May	27
Packet Radio	Alan Gibbs VK6PG	May	50
Perspective on recruiting and training	Neil Trainor VK3IJ	January	55
Presidents End of Year report	Ernest Hocking VK1LK	May	3
QSL Cards 2MT and DF0BK	Ken Matchett VK3TL	December	32
Radio Games, Scout Service Awards		August	57
Rechargeables	Will McGhie VK6UU	June	47
Remembrance Day Contest. AR WW2 SKs	Col Harvey VK1AU	July	20
Sharing the Passion	Ian McLean V3JQ	January	9
Six monthly update Amateur Satellites	Bill Magnusson VK3JT	January	34
South Australian South Coast Radio Group		August	57
Sunspot Numbers April 2002		June	28
Sunspot Numbers October 2002		December	33
Table of Allocation of International Call		December	25
The Manual Morse Decoder	Steve Page VK6BGN	March	20
The New UK Foundation licence	David A. Pilley VK2AYD	February	18
The Sunday 40-metre Net reaches 1500	Drew Diamond VK3XU	June	14
True confessions of a Bin Raider	John Kirk VK2PV/VE6XT	March	12
UHF Records	David Minchin VK5KK	March	49
Vale World Amateur Radio Call Book	David Pilley VK2AYD	October	27
Ve haff vays of making you TOCK	Mike Krochmal VK3KRO	February	16
VHF reflectors in plane view	Barry Millar VK3BJM	November	18
Vintage 1AW QSL brings record price.	BOS David Pilley VK2AYD	November	46
VK IRLP Nodes	Will McGhie VK6UU	February	33
VK3 Elmer Hall of Fame	Peter Mill VK3APO	June	31
War Birds		September	27
What Are band Plans For?	Drew Diamond VK3XU	September	37
What does the WIA do for Australian	Ernest Hocking VK1LK	April	8
What happens ?	Colwyn Low VK5UE	February	40
Why it is important to submit Technical	Drew Diamond VK3XU	April	40
WIA Comment - Survey	Ernest Hocking VK1LK	July	3
WIA DXCC List Feb (2002)		June	17
WIA Survey Results	Ernest Hocking VK1LK	August	3
WICEN helps the Community		March	25
Will your station meet EMR requirements	Jim Linton VK3PC	June	4
Windows XP Review	Alan Gibbs VK6PG	June	39
WRC 2003 Donations		July	29
Writing for Amateur radio	John Nieman	September	28
Writing for Amateur Radio Magazine		September	28
Wyong Field Day Photos	Jim Linton VK3PC	May	57

Hamfest/Conference

ALARA Meet at Murray Bridge	Christine Taylor VK5CTY	November	22
Bass AR IRLP Hamfest Rosebud Vic		February	19
Central Coast Field Day		January	37
Central Coast Field Day Wyong 2003	Central Coast ARC	November	27
Eastern Mountains Group White Elephant		February	29
Gipps Tech 2002	Peter Freeman VK3KAI	May	9
GippsTech 2002	Jim Linton VK3PC	October	12
GippsTech 2002 Call for papers		March	50

The 2002 Amateur Radio INDEX

Title	Author	Issue	Page
GippTech 2002		June	53
MDRC Hamfest May 11 2002		April	29
One-Tech 02	VK1 Div	August	37
Port Macquarie Field Day		May	13
Seanet		March	15
SEANET 2002 Convention	Barrie Burns VK6ADI	August	19
SETG Convention June 2002	Wayne Kilpatrick VK5ZX	May	39
Urunga Field Day		February	27
VK3GH Hamfest		February	17
WIA Federal Convention 2002.	Peter Parker VK3YE	July	14
WIA Federal Convention Comment	Ernest Hocking VK1LK	June	3
Winners Urunga 2002	B.J. Slarke VK2ZCQ	December	28
Operating			
1S Spratley Islands ARRL Ruling	Mal Johnson VK6LC	May	34
66 tips for 6	Neville Mattick VK2QF	February	8
Gridsquare League Table update	Guy Fletcher VK2KU	April	48
Sunspot Numbers February 2002		April	45
Sunspot Numbers June 2002		August	53
UHF Records 75, 241, 322 GHz	David Minchin VK5KK	January	49
WIA DXCC standings (335) (June 30 2002)	Mal Johnson VK6LC	August	45
OTU			
"It's a pity.."	Don Jackson VK3DBB	December	24
Academic cost cutting is an	Malcolm Haskard VK5BA	September	53
Are new EMR regulations a threat ?	Peter J. Kriel VK5AUA	July	47
Attention to "Old Timers"	Murray Burford VK5ZQ	August	52
Attention to Atttenuators	Lindsay Lawless VK3ANJ	August	52
Attention to detail	Col Harvey VK1AU	August	52
Australian Foundation Licence	Alan Wills VK4YAR	June	53
Bad operating habits	Wayne Melrose VK4WDM	December	44
Cardiac Pacemakers and Amateur radio	Ron Tulloch VK4BF	January	56
Changes in regulations causes frustration	Ottavio Tonon VK6QU	May	52
Correction Photo headings March 2002		May	53
CRTB	Ken Knox VK6ZO	February	56
Don't lower the standard	Bill McCarthy VK4WMC	February	56
Enter into the Entry Level debate	Lindsay Lawless VK3ANJ	August	53
Hooks for new recruits	Laurie Ernst VK4KLE	October	53
Internet and Amateur radio	Bruce Bathols VK3UV	February	56
Internet not part of Amateur Radio	Stan Ellis VK2DDL	January	56
Internet Question banks" essential for	Neil Trainor VK3IJ	July	55
Internet repeater linking	Alan Taylor VK6BN	January	56
Is JOTA dying	G. Scott VK2KE	December	65
Jim Linton VK3PC answers EMR critics	Jim Linton VK3PC	July	47
Koala Crystals	Steve Mahoney VK5AIM	October	53
Look after "Old Timers"	Steve Mahoney VK5AIM	May	53
Mainland Problems	Ron Churcher VK7RN	December	24
Math for AR	Lindsay Lawless VK3ANJ	October	53
Mental Illness and the Amateur Code	Heinz J Baytala VK3BEW	April	56
Novice Cram Course A Review ?	Neil Cornish VK2KCN	November	53
On air behaviour	Neville Mattick VK2QF	November	53
Perspective on Recruiting and training	Ian Trainor VK3IJ	January	55
Reply Godsil Contest Column Jan 2002	Steve Mahoney VK5AIM	May	52
The Future of Amateur radio	Lindsay Lawless VK3ANJ	December	28
VK5SIG	Godfrey Williams VK5BGW	March	56
What are Band Plans for ?	Ray Turner VK2COX	October	53

The 2002 Amateur Radio INDEX

Title	Author	Issue	Page
What are band plans for?	Drew Diamond VK3XU	September	37
Why Amateur Radio is dying	Ashley Geelan	October	52
Wills page, May AR 02 Attention to	Murray Burford VK5ZQ	August	52
People			
A Radio Active Life - Harry Atkinson	Mrs H Atkinson	October	44
A Sad farewell.	Eric Jamieson VK5LP	November	34
Antenna at VK3MO	Ron Fisher VK3OM	September	57
Dr Wally Howse VK6KZ wins Technical		October	23
Hams at home	VK3OM and VK3IO	November	57
Journey Round my Uncle Norm Hurll	N J Hurll	November	21
Martin Luther VK5GN- who builds his life	Colwyn Low VK5UE	May	11
Re-appointment of Federal Director		September	3
Remembrance Day Talk 2002	Mr Horrie Young VK2AMZ	September	23
Thomas Lynd		September	21
WIA Awards Coordinators		January	14
Women in Radio. Jean Hillier and Sue		June	22
Propagation			
Sunspot Numbers Dec 2001		February	56
Sunspot Numbers Oct 2001		January	50
Satellites			
Operating Hints - Working with Satelites 2	Peter Whellum VK5ZPG	March	34
Operating Hints - Working with Satellites 1	Peter Whellum VK5ZPG	February	35
Oscar -7 back after 22 years silence	Bill Magnusson VK3JT	August	38
Six monthly Update Operational AR	Bill Magnusson VK3JT	July	32
Silent Key			
Arie Bless (one time VK2AVA)	Ron Fisher VK3OM	November	47
Barrie Lakey VK3BL	Midland Amateur Radio Club	March	38
Bill Bower VK7AV	Robin Harwood VK7RH	February	31
David Jessop Parry VK2CX	Stan Bourke VK2EL	September	52
David Mathison VK2KLV	Gerry Barker VK2TSR	July	17
Edward Charles "Eddie " Hornbuckle		March	33
Fred Stirk VK2ABC	Ade Stirk	January	27
Geoff West VK2BT	Bob Hawksley VK2GRY	February	10
Gordon Wiliam Lanyon VK2AGL	K.R. Harvey VK2BKH	April	27
Hugh Lloyd VK5BC	John Elliott VK5EMI	June	38
Ian Sewell VK3IK	VK3XC,VK3JO and VK3OM	November	32
Jim Stephenson VK2AEK	Les Daniels VK2AXZ	April	36
John Eastaugh VK5GY	Derek Hague VK5AFP	April	14
John Ewen Gerber OBE; AFC VK1EG	Col Harvey VK1AU	April	38
John Thornthwaite VK2ATO	Stan BourkeVK2EL	November	20
Ken Hanby VK4IS	Ron Marschke VK4GZ	August	37
Kenneth Neal Greenhalgh VK2KG	Athol Greenhalgh VK2BCJ	March	25
Kevin McGrath VK3EOM	Ron Sutcliffe VK3RS	March	38
Kingsley Bauer VK5AKN	Syd Harvey VK6SMH	August	26
Les Kinch VK2BBD	J.R. Blackman VK2KJB	January	27
Lieutent-Colonel Sir Evan Napean Bt SK		November	46
Peter Campbell VK2AXJ	Stan Bourke VK2EL	March	43
Ronald McDouall Stuart VK2ASJ	W McD. Stuart	January	26
Selwyn Weston VK2SY	Stan Ellis VK2DDL	March	47
The close of an Era Alan Vagg VK3AVG	John Bennet VK3ZA/VK2SIG	September	44
The Close on an Era. Alan Vagg VK3AGV	John Bennet VK3ZA/VK2SIG	September	44

Title	Author	Issue	Page
Unsilent Key Ted Milles VK2FLB - Apology	Editor AR Magazine	February	55
Vic (Vincent) Noble VK5AGX	Angela Noble	September	52
Technical Abstracts			
Active Antenna	Gil Sones VK3AUI	May	15
Antenna Tuning Unit	Gil Sones VK3AUI	April	24
Battery saver Timer	Gil Sones VK3AUI	March	27
Blu Tack Swarf Catcher	Gil Sones Vk3AUI	October	43
Bypass capacitors	Gil Sones VK3AUI	November	29
Copper Wire current ratings and usage	Gil Sones VK3AUI	August	26
Depth Stops for drills	Gil Sones VK3AUI	March	27
Determining Transistor and Diode leads	Gil Sones VK3AUI	February	26
Digital meter Supply	Gil Sones VK3AUI	January	51
Digital pF meter	Gil Sones VK3AUI	June	26
Elevated Feed Antenna	Gil Sones VK3AUI	December	29
EMC	Gil Sones VK3AUI	July	26
EWE Antenna	Gil Sones VK3AUI	July	24
External GPS Antenna	Gil Sones VK3AUI	December	30
Finding a break in multi core cable	Gil Sones VK3AUI	March	26
FOXX11	Gil Sones VK3AUI	November	28
Grounded Tower Elevated Feed	Gil Sones VK3AUI	September	26
Large loop with balanced feed	Gil Sones VK3AUi	November	20
Lighting detector	Gil Sones VK3AUI	June	27
Linear loaded Diople	Gil Sones VK3AUI	October	20
Log periodic for 2 metres	Gil Sones VK3AUI	July	23
Making a LED audible	Gil Sones VK3AUI	October	21
Monel Wire for corrosion free Antennae	Gil Sones VK3AUI	March	28
Permeability tuning for simple AM Radios	Gil Sones VK3AUI	June	26
Portable Two Element triband Yagi	Gil Sones VK3AUI	February	25
Rigid Stayed Tower	Gil Sones VK3AUI	September	26
Sardine Sender Updated	Gil Sones VK3AUI	February	26
Shortening Screws	Gil Sones VK3AUI	August	29
Shortening screws	Gil Sones VK3AUI	May	21
Simple CW Filter	Gil Sones VK3AUI	December	31
Six metre Squalo	Gil Sones VK3AUI	May	14
Soldering Litz wire	Gil Sones VK3AUI	March	26
Stealthy Delta	Gil Sones VK3AUI	September	27
The Miracle Whip	Gil Sones VK3AUI	April	23
Top Drive	Gil Sones VK3AUI	August	27
VFO Temperature Stabilisation	Gil Sones VK3AUI	April	24
WBR Receiver	Gil Sones VK3AUI	January	24
with a Multimeter	Gil Sones VK3AUI	February	26
Technical Antennæ			
A Field day or Emergency Portable mast	Keith Gooley VK5OQ	February	11
A home brew dish and the weather	Norm Rosensweig VK5ZAH	January	7
Alternative to AZ/EL Tracking Systems	Bill Magnusson VK3JT	October	34
Low Loss Current Balun for 1.8- 30 MHz	Peter Woodland VK3ZPW	October	9
More about Shack in a Brief Case	Ron Holmes VK5VH	September	15
The DISCONE - A good broadband	Mike Todd VK6JMA	February	9
The Shack in a Briefcase	Ron Holmes VK5VH	July	4
Technical Instruments			
"Tone a Tune" Audible SWR bridge	Drew Diamond VK3XU	March	4
"Tone a Volt" audible voltage and	Drew Diamond VK3XU	February	4

The 2002 Amateur Radio INDEX

Title	Author	Issue	Page
A basic microwave source 1100-1900	Dale Hughes VK2DSH	July	11
A Capatance Bridge for Radio Work	Drew Diamond VK3XU	August	4
A few drops of Homebrew	Max Riley VK3ARZ	June	11
A low cost microwatt meter	Dale Hughes VK4DSH	July	18
An LF-VHF Milliwatt.watts Power Meter	Drew Diamond VK3XU	April	4
Charlie's Toys Grid Dip Meter	Charlie Sims VK2ABF	March	10
Correction VHF SWR and Watt Meters	Gordon McDonald VK2ZAB	October	14
DTMF encopder from an old tepephone	Don Gamble VK6KAR	August	15
Measuring Q with the simple Q meter	Lindsay Lawless VK3ANJ	January	12
The P & SWR meter	Kees Heuvelman PA0CJH	April	17
VHF SWR and Watt meters	Paul Clutter VK2SPC	January	4
Technical Receivers			
A Constructor's report on the WBR	Peter Parker VK3YE	April	15
A Digital Frequency Display	Phil Rice VK3BHR	September	6
A few drops of Homebrew	Max Riley VK2ARZ	June	10
A Practicable Superhet Receiver for 1.8 to	Drew Diamond VK3XU	May	4
An HF receiving converter	Drew Diamond VK3XU	June	6
Fixing your radio so it actually works	Merv Miller VK5MX	September	4
Technical Transmitters			
A 25 watt AM/CW Valve Txr 1.8- 3.5 MHz	Drew Diamond VK3XU	November	4
Technical			
A Simple HF Signal Source	Drew Diamond VK3XU	October	4
A Temp. controlled Crystal Freq. Calibrator	Drew Diamond VK3XU	December	18
Another battery saver timer	Evan Phillips VK3BIX	April	14
Boom Correction factors	Gordon McDonald VK2ZAB	November	29
Build an electronics set	Peter Parker VK3YE	December	23
Cheap and cheerful Varicap Diodes	Jim Tregellas VK5JST	May	17
Computer Noise	Alan Gibbs VK6PG	October	39
Inverters Update	Will McGhie VK6UU	December	60
Low Drop-out voltage regulator	Keith Gooley VK5OQ	November	9
Measuring Echos and Propagation Pt 1	H de Waard PA0ZX and PA0FA	December	10
Mods etc. for the Double Tuned Crystal	Felix Scerri VK4FUQ	December	9
Power Line Monitor	Wim van Broek PA0JEB	October	22
Simple Q meter Corrections		May	13
Some Uses for a Dip Oscillator	Drew Diamond VK3XU	December	4
Superconductivity	Paul Clutter VK2SPC	August	8
The Double Tuned Crystal Set Tuner	Felix Scerri VK4FUQ	March	8
The QRP(Quite reasonably Priced) Keyer	Keith Sherlock VK2WO	October	10
The Radio Control of Model Aircraft	Godfrey Williams VK5BGW	September	9
The RS-20 Power Supply	Jim Tregellas VK5JST	November	11
The RS-20 Power Supply- Cautionary Note	Colwyn Low VK5UE	November	17
The RS20 Power Supply	Jim Tregellas VK5JST	December	61
Zener Diodes: still useful	Lloyd Butler VK5BR	October	18

The Central Coast Field Day

for

RADIO AMATEURS AND ENTHUSIASTS, COMPUTER AND ELECTRONIC HOBBYISTS

Sunday 23rd February, 2003

Wyong Racecourse. Gates open 8.30 am

Gridsquare League Table

Guy VK2KU

Formatted copies are available on the website of the NSW VHFDX Group: http://www.vhfdx.oz-hams.org (press the "Gridsquares" button) either as a Word 6/95 file or in HTML format.

While the usual minor changes have occurred to the Tables, one feature deserves comment. Five participants in the 144 MHz terrestrial table have improved their scores by more than 10 squares (4 of these by more than 20 squares). Such increases are without precedent in the lifetime of these Tables. There is no single reason for this. One station has recorded his first update for about a year. Barry VK3BJM has been out portable on SSB in some rare squares in Western NSW (thanks Barry). But by far the biggest factor has been the recent trip by Rex VK7MO into rare squares of central and southern Queensland and Northern NSW. While a few of Rex's contacts have been by SSB (and even JT44), the great majority of these rare squares were activated by the meteor scatter mode FSK441. Those stations taking advantage of this bonanza have had a "field day" - thanks Rex for making it all possible.

Happy reading, and congratulations to ALL those who have lifted their scores.

Gridsquare Standings at 26 November 2002

144MHz Terrestrial

VK2FLR	Mike	96
VK2KU	Guy	85
VK3FMD	Charlie	76
VK2ZAB	Gordon	72 SSB
VK2KU	Guy	66 SSB
VK3BRZ	Chas	66 SSB
VK2DVZ	Ross	59 SSB
VK3EK	Rob	57
VK3KAI	Peter	54
VK3TMP	Max	53
VK3XLD	David	53
VK3BDL	Mike	50
VK3CY	Des	50
VK3ZLS	Les	50 SSB
VK2EI	Neil	46
VK3BJM	Barry	45
VK3WRE	Ralph	44
VK2DXE	Alan	43
VK2TK	John	41
VK3CAT	Tony	39
VK3KEG	Trevor	39
VK7MO	Rex	32
VK2TK	John	29 SSB
VK4KZR	Rod	29
VK4TZL	Glenn	28
VK6HK	Don	28
VK4DFE	Chris	24
VK2KU	Guy	23 Digi
VK3KME	Chris	22
VK3HZ	David	21
VK2TG	Bob	20
VK3YB	Phil	20
VK3TLW	Mark	19
VK6KZ	Wally	19
VK3AL	Alan	17
VK6KZ/p	Wally	16
VK2TK	John	13 Digi
VK3DMW	Ken	13
VK2LRR	Leigh	11 FM
VK2DXE/p	Alan	10
VK3ANP	David	10
VK2TWO	Andrew	5
VK2CZ	David	1

144MHz EME

VK2FLR	Mike	90
VK3CY	Des	66
VK2KU	Guy	21
VK3KEG	Trevor	4
VK3FMD	Charlie	3
VK2DVZ	Ross	2
VK7MO	Rex	1

432MHz

VK2ZAB	Gordon	50 SSB
VK3BRZ	Chas	46 SSB
VK3XLD	David	44
VK3FMD	Charlie	41
VK3ZLS	Les	36 SSB
VK2KU	Guy	32
VK3EK	Rob	32
VK3BJM	Barry	29
VK2DVZ	Ross	27 SSB
VK3BDL	Mike	26
VK3KAI	Peter	26
VK3TMP	Max	25
VK3WRE	Ralph	24
VK3CY	Des	23
VK3KEG	Trevor	21
VK3HZ	David	15
VK7MO	Rex	15 SSB
VK3CAT	Tony	14
VK4KZR	Rod	14
VK2TK	John	13 SSB
VK3TLW	Mark	13
VK6KZ	Wally	12
VK3AL	Alan	10
VK3ANP	David	10
VK2TG	Bob	8
VK3KME	Chris	8
VK3YB	Phil	8
VK6KZ/p	Wally	8
VK4DFE	Chris	6
VK2FLR	Mike	5
VK4TZL	Glenn	5
VK2CZ	David	3
VK2TWO	Andrew	3
VK2DXE/p	Alan	2
VK3DMW	Ken	1

1296MHz

VK3XLD	David	29
VK3BRZ	Chas	28 SSB
VK2ZAB	Gordon	25 SSB
VK3FMD	Charlie	25
VK3ZLS	Les	24 SSB
VK2KU	Guy	19 SSB
VK3EK	Rob	19
VK3KWA	John	19
VK3WRE	Ralph	16
VK3KAI	Peter	14
VK2DVZ	Ross	13 SSB
VK3BDL	Mike	12
VK3BJM	Barry	12
VK3TMP	Max	11
VK7MO	Rex	10 SSB
VK4KZR	Rod	9
VK2TK	John	8
VK3AL	Alan	7
VK6KZ/p	Wally	5
VK3BVP	Shane	4
VK6KZ	Wally	4
VK3KEG	Trevor	3
VK3YB	Phil	3
VK2DXE/p	Alan	2
VK3CY	Des	2
VK2CZ	David	1
VK3DMW	Ken	1
VK4TZL	Glenn	1

2.4GHz

VK3WRE	Ralph	8
VK3KAI	Peter	7
VK3FMD	Charlie	5
VK3BRZ	Chas	4 SSB
VK3EK	Rob	4
VK3XLD	David	4
VK6KZ	Wally	4
VK3BJM	Barry	3
VK4KZR	Rod	2
VK3TLW	Mark	1
VK4TZL	Glenn	1

3.4GHz

VK3FMD	Charlie	4
VK3KAI	Peter	4
VK6KZ	Wally	4
VK3EK	Rob	3
VK3WRE	Ralph	3
VK3XLD	David	2

5.7GHz

VK3FMD	Charlie	7
VK3WRE	Ralph	7
VK3KAI	Peter	5
VK6KZ	Wally	4
VK3XLD	David	3
VK3BJM	Barry	2
VK6BHT	Neil	2

10GHz

VK6BHT	Neil	9
VK3FMD	Charlie	6
VK6KZ	Wally	5
VK3EK	Rob	4
VK3KAI	Peter	4
VK3WRE	Ralph	4
VK3XLD	David	4
VK3TLW	Mark	3
VK2EI	Neil	2
VK3BJM	Barry	2

24GHz

VK6BHT	Neil	3
VK2EI	Neil	2
VK6KZ	Wally	2

474THz

VK7MO	Rex	1

Additions, updates and requests for the guidelines to Guy VK2KU, vk2ku@hermes.net.au, or by mail (QTHR 2002).

Next update of this table will be in February 2003.

Stations who do not confirm their status for more than 12 months may be dropped from the table.

ar

PLAN AHEAD

John Moyle Field Day
15, 16 March

★ ★ ★ ★

Urunga Field Day
19, 20 April

Division News

VK1 Notes

Forward Bias

Peter Kloppenburg VK1CPK

It was, **"Silence! - Lights! - Cameras! - Action!"**, when Canberra's One Tech '02 Radio and Electro-Technical Symposium got underway at 10.00 am, on Sunday, November 17 at SoftLaw House, National Circuit, in Canberra. The conference hall resembled an ABC-TV big-event studio. There were three video cameras on tripods, plus another link from the computer-projector. Up to five microphones were used apart from the camera links. This service was provided by the Gladesville ARC of NSW, which sent an Outside Broadcast (OB) van with equipment and a camera crew of seven to videotape the event for posterity

Convened, directed, and moderated by Peter Ellis VK1KEP, the purpose of the symposium was to bring university and industry researchers, TAFE teachers and students, and radio amateurs together, and have them present state of the art developments to each other in a controlled environment.

Peter was successful in assembling a range of speakers on subjects as diverse as: The use of Plasma as an antenna, Radio astronomy in your backyard, Satellite communications, including FEDSAT – the Aussie satellite, Data modes in Amateur Radio, including RS-485 data control of radio equipment, and WIA – the Federal Picture. More detail is available at the Divisional Website www.vk1.wia.ampr.org

Midway through the day, a handful of movers and shakers, such as Dick Smith VK2DIK businessman, Ernest Hocking, VK1LK WIA Federal President, Gilbert Hughes VK1GH ex-ACA executive, Hugh Blemings VK1YYZ, VSB Pty Ltd, and John Gordon - Defence, engaged in a panel discussion on issues related to amateur radio and its future. Many questions were asked when the panel discussed subjects such as: How to stimulate a renewed interest in amateur radio; What is Dick Smith going to do next year?; The pros and cons of introducing the Foundation Licence; and, should the WIA reconfigure itself into one single body?. Some of the speakers brought equipment for display and demonstration. Dale Hughes VK2DSH showed off his radio astronomy, 10 GHz receiving gear, as used with a dish antenna at his home. Interestingly, those of us who have the equipment to communicate on the 23 cm band, can use it in the pursuit of radio astronomy at any time. Dale also said that with a simple dipole antenna cut for 38 MHz, interstellar signal sources - hot spots - can be received with simple radio receivers. The next step up would be the 'hydrogen line' at 1420 MHz, again, a simple Tuned Radio Frequency receiver (TRF) would give surprising results. Many interesting books on radio astronomy were on display as well. All of them written for amateurs, with some giving full details of how to build the receivers, antennas and tracking mechanisms. Not surprisingly, they were all titled "Amateur Radio Astronomy". Another display, by Kerry Richens VK1KRF, showed how the 'Serial Data Control Protocol' (RS-485) can be used to automate radio station operation, including antenna switches and rotators, and other equipment around the house or work place. Peter Westerhoff VK1NPW, together with Geoff Gatward VK2XJG, Carl Makin VK1KCM, Michael Thurgar VK1TMT, and Darryl Smith VK2TDS, provided back-room support, and showed how easy it is to install an APRS system in the car. A few black boxes, including the modem, were all the items required to use the system. Peter was instrumental in setting up the APRS node in Canberra.

The next important event was the Special General Meeting on Monday, November 25, '02 at the Scout Hall in Farrer. This meeting was called to get approval from the members to change the Objects and Rules (Constitution), and, to have an end-of-the-year celebration. Both were successfully completed. The first one within 40 minutes from the start of the meeting, the second, after midnight. The amended constitution will be available from the secretary in either hard copy, on disk, or via the Internet, after approval has been obtained from the Registrar General, in a few weeks time.

All members are invited to attend the Annual General Meeting on Monday, February 24, 2003. All positions on the committee are up for election, but both the president and the secretary have completed their three-year terms. Some of the present committee members have indicated that they will nominate again, but some will not. So, this is your chance to secure a seat on the committee and help move things along.

Cheers.

VK2 Notes

by Pat Leeper VK2JPA

Welcome back! We hope you are all revitalised after the holiday break and raring to go.

The first item of interest this month is the upcoming annual general meeting which will take place on Saturday 12th April. Nominations are due on Saturday 1st March at the office at 109 Wigram Street Parramatta.

Forms can be obtained from the office by phoning 9689 2417.

Give some thought to helping out your association in whatever way you can. Councillors' duties are not onerous, so don't be afraid to give a hand to keep the Institute going along on a level keel. You might be pleasantly surprised how interesting involvement can be.

The Institute will be present at the Wyong Field Day and you will be able to meet the councillors and exchange views - perhaps come up with some suggestions for the future direction of the Division.

That's all for this month.

VK3 Notes

By Jim Linton VK3PC
WIA Victoria web site: www.wiavic.org.au
email: wiavic@wiavic.org.au

2nd inductees to the EHoF

The WIA Victoria Elmer Hall of Fame (EHoF) has received many positive comments about the recognition being given to Elmers who have helped VK3 radio amateurs.

Even though best efforts were made to widely publicise for about six months in advance, some were not aware of the EHoF until it was launched in November last.

However they have been quick to nominate a few more Elmers who are fine examples of the type of individual that deserves recognition by being inducted to the EHoF.

There are certain to be others just as worthy for nomination. The 2nd induction of Elmers to the WIA Victoria Elmer Hall of Fame will occur in May.

Before submitting a nomination please check the EHoF on the WIA Victoria website, and read the citations for each Elmer as a guide to what is required.

To make a nomination email wiavic@wiavic.org.au and please put "Elmer" in the subject line, or write to: Elmer Hall of Fame, WIA Victoria, 40g Victory Boulevard, Ashburton 3147.

Busy year ahead

It is certainly shaping up to be an extremely busy year for the WIA with 2003 packed with events including:

- WIA Federal Convention will be held at the Glenelg Conference Centre, Glenelg, Adelaide, 4-6 April
- World Radiocommunications Conference, Geneva, Switzerland, 9 June to 4 July
- IARU Region 3 Conference, Taipei, Taiwan 1-5 September
- The 5th IARU Region 3 ARDF Championships, Mt Helen Campus, Victoria University, Ballarat, 28 November - 3 December

Space travellers and amateur radio

Members of The Space Association of Australia were delighted at a recent meeting to hear first hand accounts of communication by radio amateurs with the Mir and ISS space stations.

Guest speaker representing WIA Victoria was Maggie Iaquinto VK3CFI who spoke about her experience of personal and school student contacts with the Mir space station while she was a teacher at Colac.

Using a powerpoint presentation Maggie gave an insight into the early days of earth-space amateur communications, and how she developed a personal rapport with a number of cosmonauts.

The presentation also included some copies of packet radio messages exchanged between VK3CFI and Mir, and various highlights of her contacts.

Congratulations to VK3 record achievers

In the latest update of the VHF/UHF distance records, two new national distance records have been set by VK3 radio amateurs.

The 2-metre national mobile record has been broken after 16 years: Peter VK3KAI/m to Bill VK6AS, 20/12/2002, 2274.4 km.

A new national 10 GHz Digital Modes record: Mark VK3TLW/3 to Ralph VK3WRE/3, 28/12/2002, 114.2 km.

A third record involving a contact between VK2 and ZL, is set to become a new 70cm national digital modes record.

At the time of writing these VK3 Notes, the record books had Ian VK3AXH/3 working Rex VK7MO/7 having achieved a record distance of 649.1km on 21/11/2002. However their achievement will be overtaken by the VK2/ZL contact once the claim is processed.

With what is being described as the best VHF/UHF propagation in a decade, more new distance records are likely to be set this summer.

SWL initiative

Amateur Radio Club Polonia VK3CRP is to be given a WIA shortwave listener number that it can use through the WIA Victoria QSL Bureau as an introductory incentive for potential club and WIA members.

The idea is that the WIA L3- number can be used to introduce the joys of shortwave listening and QSLing to beginners, who will hopefully gain an interest leading them towards becoming radio amateurs.

The WIA Victoria Council at its meeting in December adopted the initiative, and will arrange for a block of WIA L-3 numbers which will be offered to all WIA Victoria affiliated clubs.

Council news update

A report on the WIA Victoria Council meeting held on 3 December, 2002, can be read in the Council News Update section of the WIA Victoria website.

The next meeting of the Council is proposed for Tuesday 25 February 2003. Members are always welcome to make written submissions to the Council, which should be in writing to the Secretary.

WIA Victoria AGM

The annual general meeting date has been confirmed as Thursday, 22 May, 2003. A formal notice will be issued to members.

The three year term of office for the WIA Victoria Council concludes at the AGM.

Nominations for the 2003-2006 Council close at noon on Friday 21 February 2003, and can only be accepted on a form available from the Secretary.

The WIA Victoria Office opens after the holiday break on Tuesday, 4 February. The first VK3BWI broadcast for 2003 is at 8.00 pm on Sunday 2 February.

VK4 Notes

Alistair Elrick VK4MV

Qnews

TheTARCinc John Moyle Field Day Operations

14th to 16th March 2003

TheTARCinc will be active during the 2003 John Moyle Field Day from a tributary of the mighty Burdekin River. The Club Station VK4WIT will be located at Keelbottom Creek Camping Grounds, Herveys Range Developmental Road, Shire of Dalrymple.

Position 19deg 29min 25sec South - 146deg 19min 56sec East, 58.0 km by road from Thuringowa Central via Herveys Range Developmental Road with 12.0km unsealed road from High Range Training Area turnoff. Grid is QH30dm UTM 55K 429741 7844368 and an Altitude of 300metres.

Duration from PM Friday March 14th until lunch Sunday March 16th. Club Station and Singalong under the big TARC tarps, TARCvan in attendance.

The Townsville club hopes to not only test its mettle in emergency operating conditions but also to give people a chance to observe and participate in Amateur Radio activities. We welcome visitors to come and observe and (if they are game) to operate! Many of the TARC Radio Theory Class members will also be at the camp participating in the Field Day.

The John Moyle Field Day activity is a golden opportunity for anyone with an interest in electronics or radio to visit and have a go operating by voice or Morse. There is also the chance to pick the brains of other operators who will be very glad to help out with that niggly problem you might be having.

This field day we hope to do:

Swimming, Bushwalking, Vertical Ascent Apparatus Piloting, Bush Cooking, antenna tweaking, swimming and, oh yes, some radio operating as well! Class Members/Novices/ Limiteds... your chance to work the unrestricted bands with a full call as your willing slave! The traditional Saturday Night marathon singalong will be happening too (be sure to pack the musical instruments as well as the radio gear!)

All this plus having a go in the contest. You Have To Be There!

Book early for this

On the 19th Sep 2003, for the North Queensland Amateur Radio Convention 2003. The date has been set for one of THE most popular conventions in the Amateur Radio calendar world wide. In its 30th year, the 16th North Queensland Amateur Radio Convention will be happening at James Cook University from PM Friday 19th to PM Sunday 21st September 2003.

VK4 Area Special Interest Groups — WICEN

Ewen McLeod VK4ERM
State Co-ordinator,

A regular net exists Sunday mornings 7.075 at 0830k. November has come and gone and once again, the Brisbane Area WICEN Group assisted the Endeavour Foundation in the running of the annual 500 Summer Challenge foot relay. 18 teams of approx. 20 runners per team, each team member required to run a minimum of 25 km over the three-day weekend. The relay started at Mt Gravatt heading to Boonah via Dreamworld, Oxenford, Canungra and Beaudesert. Restarting on Saturday in Boonah heading to Toowoomba via Cunningham's Gap and Warwick. Restarted again in Toowoomba on Sunday, heading to Ipswich via Gatton and Laidley. The WICEN team consisted of a "Pathfinder", 8 Change Point Vehicles with two operators and a Repeater Vehicle. The changeover points are approximately 5km apart. The "Pathfinder" (VK4KV) marks out the change points, places each operator in position and reports on any problems with the course. The repeater operator (VK4AL) controls the overall communications on HF, VHF & UHF. While Simon (VK4TSC) travels with the Event Director to advise him of any problems, reported by the operators. The relay required operators to work from daybreak to dark, to be in position for the runners. VK4AL & VK4KV set up a 2-metre repeater at Eagle Heights. VK4AL operated a portable 2-metre repeater (on the same frequency) and through careful listening by operators, the use of two repeaters on the one frequency did not cause `hidden transmitter' difficulties as may have been expected. This exercise helps WICEN gain knowledge, which would be required for evacuations in bushfire emergencies etc.

Weird and Wonderful FM DX

Indicated by sharks in Brisbane? Marcus Fitz writing to Peter Parker reckons he has found a new yet crude way of knowing when VHF DX is biting! Marcus says around Brisbane if there are sharks chasing schools of fish close to shore, FM DXing conditions will be pretty good. Is this because the fish are close to the shore due to warmer water? Last time this happened was in March/ April. He lives in Brisbane's inner south 8km from CBD and could clearly receive Noosa 96.1 FM from Mt Wolvi about 160km or more to the north and this is with only 500 watt his way. See we'll have to get this weird and wonderful to QNEWS reporter Trevor Taegge VK4BAT as he's the News Director of Noosa's 96.1 (aptly named "THE HEAT"). VK4BAT also does most of the QNEWS voice identification tracks. Though water takes a while to warm, so it may need a few days of high temps first. Or is it the signals are reflected off the shark nets strung for safety down the VK4 coastline? Whatever, when the sharks are in, go DX fishing!

73s from Alistair

VK6 Notes

Annual General Meeting 2003

It is hereby notified that the Annual General Meeting of the Wireless Institute of Australia Western Australian Division Incorporated will start at 10am on Saturday 19th April 2003.

The venue for this year's AGM event will be the Board Room at CWA House 1174 Hay Street West Perth and the agenda will be:

1. Consideration of the Council's annual report
2. Consideration of the financial report
3. Consideration of other reports
4. Election of office-bearers (President, Vice President and seven other Councillors)
5. Election of two Auditors
6. Appointment of a Patron
7. General business which has been duly notified.

Notices of Motion for the AGM must be received by the Secretary not less than 42 days prior to the meeting (i.e. by the 7th March 2003), and must be signed by at least three members.

The Secretary's postal address is WIA WA Div. PO Box 10 West Perth WA 6872.

Nominations of candidates for election to Council must be received by the Secretary, in writing, not less than 42 days prior to the meeting (i.e. by the 7th March 2003), with an intimation that the candidate is willing to act.

A candidate may submit a statement, not exceeding 200 words, outlining his or her experience and case for election. Each nomination shall be signed by two members proposing the candidate. Candidates must possess a current amateur licence.

Any financial member who is entitled to vote may appoint a proxy, who must also be a financial member who is entitled to vote, to speak and vote on his or her behalf. Written notice of such proxy must be received by the Secretary prior to the meeting, and be in the following form:

> I, ... (full name)....., a member of the Institute, hereby appoint .... (full name)....., also a member of the Institute, to act for me as my proxy, and in my name do all things which I myself being present could do at the meeting of the Institute held on the 19th April 2003.
>
> Signed: .....
> Witness:.....
> Date: .....

Lunch will be provided in the form of sandwiches, cakes, biscuits, coffee and juice.

Council trusts there will be a quorum for the AGM by 10am. Lunch will be at 12 o'clock. It could be followed by up to two hours of discussion about Amateur Radio, plus "Any Questions"

Listen to NewsWest for more information.

VK5 Notes

The AGM will be held on Tuesday the 22nd of April 2003 at the St Johns Hall, Arthur Street Unley commencing at 7:30 p.m.

Nominations are called for the positions of President, Secretary, Treasurer and Minute Secretary.

Nominations are to be in writing and must be received by the secretary prior to the commencement of the meeting. Nominations may be sent to the Secretary, GPO BOX 1234, ADELAIDE, SA 5001.

All nominations to be proposed and seconded by financial members and signed by the nominee as accepting the position.

Regards & 73

Peter Reichelt VK5APR
Hon Secretary.

VK7 Notes

QRM

Amateur radio got some good publicity on a recent Wednesday evening via one of our Tasmania wide Commercial TV stations when they broadcast a segment on one of our very longtime hams, VL7LZ, Col Wright. Col has just turned 90 and has had his ticket for over 70 years. He has now had to leave his home of many, many years at Geeveston and has moved into the Rosary Gardens Home in Hobart. As a lifelong HF man Col is very frustrated with now having only 2 metres. The segment was done in association with Rex Moncur, VK7MO.

With the very mountainous nature of Tasmania we often get problems with north/south/northwest links for both our Sunday broadcast and the Monday "Spectrum" magazine broadcast. Through the good offices of Tony, VK7AX and Jim, VK7JH on the coast, Joe, VK7JG in Launceston, and Danny, VK7HDM an audio streaming system has been set up which allows the Hobart "Spectrum" relay to be in excellent FM quality and the reverse for the north and northwest relays of the Hobart based State broadcast. BIG improvement!!.

Cheers for now Ron, VK7RN

AMSAT

Bill Magnusson VK3JT

Foreword:

I had the misfortune to suffer some antenna damage to the satellite system in early December. Two very severe wind and hail storms cut through Milawa and surrounds causing quite a lot of structural damage to homes and property. Add to this that the column is being written on my laptop in Perth, WA where I have been visiting my grandchildren for Christmas. Therefore most of the items in this column have been gleaned from Internet and web based sources rather than personal experience. I hope things will be back to normal next month.

Initial Phase 3E Planning Meeting in Marburg

Late in 2002, more than 30 experts from ten countries met in two working groups at AMSAT-DL in Marburg, Germany.

At the meetings, the first design criteria for the next project, AMSAT Phase-3E were finalised. This amateur radio communication satellite should be in the 150 kg class and very similar in design to its predecessors AO-10 (P3B) and AO-13 (P3C). The goals are to provide both analogue and digital radio communication, essentially between 145 MHz and 2400 MHz. Experimental modes for wavelengths in the cm and mm range were also proposed.

The meetings were fully reported by AMSAT-DL President Peter Guelzow, DB2OS. His report can be downloaded as a PDF file from AMSAT-DL's Internet site using the URL: http://www.amsat-dl.org/p3e/p3e-20021120.pdf [taken from a report in the AMSAT-DL journal].

The AMSAT group in Australia.

The National Co-ordinator of AMSAT-VK is Graham Ratcliff VK5AGR. No formal application is necessary for membership and no membership fees apply. Graham maintains an email mailing list for breaking news and such things as software releases. Members use the AMSAT-Australia HF net as a forum.

AMSAT-Australia HF net.

The net meets formally on the second Sunday evening of the month. In winter (end of March until the end of October) the net meets on 3.685 MHz at 1000utc with early check-ins at 0945utc. In summer (end of October until end of March) the net meets on 7.068 MHz at 0900utc with early check-ins at 0845utc. All communication regarding AMSAT-Australia matters can be addressed to:

AMSAT-VK,
GPO Box 2141,
Adelaide, SA. 5001.

Graham's email address is:
vk5agr@amsat.org

New German Amateur Radio Satellite Launched and Operational

The German amateur radio satellite SAFIR-M was launched by a converted Russian ballistic missile on Friday December 19 2002,

It was launched from Baikonur Cosmodrome along with a cluster of five other satellites for a variety of organisations around the world. One of these projects is believed to have been a third Saudi-Sat for a Saudi Arabian customer. SAFIR-M is a project of a group called the "Working Group for Amateur Radio and Telecommunications in Schools". SAFIR-M was developed in close co-operation with the University of Applied Sciences in Pforzheim, Germany by a team under the leadership of Henning Rech DF9IC. The main purpose of the satellite is to give students easy access to space communications. It will have a downlink at 145.825 MHz with AX.25, 9k6 packet as well as an optional voice message beacon. The uplink is at 435.275 MHz (AX.25, 1k2), offering Mode B operation.

The callsign will be DP0AIS. (DP-zero-AIS). SAFIR-M is designed as a "store and broadcast" system for APRS based messages, dedicated for use by schools in combination with the existing WX-Net and planned buoy experiments in Germany. Its success will extend German space educational activities to a European and global base. Details on SAFIR-M can be found on the world wide web at http://amend.gmxhome.de.

At the time of writing the SAFIR-M homepage is still in German, but work is underway to add the information in English. The above information was supplied by Oliver DG6BCE. There has been no word yet of how the general amateur community can take part in these experiments. Late breaking news indicates that the downlink baud-rate is not quite as expected and some of the comms protocol will require slight alterations to software. This is being worked around at the time of writing.

Some Questions and Answers Regarding AO-40

Stacey Mill, W4SM, recently took time to answer a few questions recently posted via the AMSAT-BB email reflector.

From time to time a lot of interest is generated by particular questions posted to the AMSAT bulletin board. These usually fall into the "things that everyone wants to know but are too afraid to ask" category. As in the following examples an AMSAT guru usually comes to the fore with authoritative, easy to understand answers.

Q1: Why is LEILA only switched into the U-band uplink when stations on L-Band are much stronger? Is there a technical problem with LEILA?

Stacey: "There are no technical problems, per se. Everything related to Leila works as it should, as far as I know. However, if you review the telemetry specs. you will see that U-band can be connected to either Leila-1 or Leila-2. L1 can only be connected to Leila-1 and L2 can only be connected to Leila-2. Therefore, we have several options. We can run L1 and U through Leila-1 and disconnect L2, we can run L2 and U through Leila-2 and disconnect L1, or we can run both LEILAs. Because LEILAs are not perfect and they often chase "ghosts" having both LEILAs connected means twice as many false

alarms on the passband, disrupting QSOs and draining transmitter power for the siren. The command team would prefer not to pursue this option at the moment. The huge AGC suppressions on U-band (I saw -23 dB last night!) mandate that Leila remain active on this band. Otherwise, a few powerful signals will suppress the U-band AGC to the point that others cannot use the passband. This is a major cause of the "fades" heard on the downlink from time to time. The AGC on L-band shows little or no response to the uplink signals, so signals on L-band are not suppressing L-band receiver sensitivity. They may ultimately affect the S2 ALC, but I see no evidence of that in the recent telemetry. Nonetheless, it is likely that as L-band use grows Leila will need to be added to this uplink from time to time. To do so will require shutting down one of the L-band links and it will also mean that Leila will be spread "thinner" in the sense of having two uplinks to police. This means that while Leila is notching out a strong L-band signal that is not suppressing the L-band AGC or affecting the S2 ALC, other U-band signals may be severely depressing the U-band AGC. Leila is not a cure all, and is no substitute for common sense and good operating practices. Fortunately, the great majority of AO-40 operators are very good in this regard. However, telemetry capture is still hampered by occasional individuals who insist on zero beating the beacon or repeatedly swishing through it. Although S2 has 250 kHz of passband, from time to time someone feels the need to tune directly on top of another QSO. Leila cannot affect these occasional poor operating practices. Leila does not treat all signals the same. CW signals stronger than the beacon are not uncommon and will escape LEILA's attention. SSTV signals are relatively immune to Leila. Even the tone of one's voice seems to affect LEILA's "attention." LEILA's current sensitivity setting seems about optimal. Turning the sensitivity up will result in too many false alarms, decreasing sensitivity would lead to even more AGC suppression. Leila, like everything else in life, is a compromise". (If you haven't worked it out already, LEILA is a device on board AO-40 that tries to prevent unthinking or uncaring people from using more uplink power than necessary. It sounds a 'siren' and turns down the gain in the segment of the passband where such transgressions occur. So – in theory anyway – the only person who suffers is the one using too much power ... vk3jt).

Q2: How long can AO-40 remain at ALON/ALAT = 0/0?

Stacey: "We can hold this position until early March 2003, at which point we must begin slowly moving ALON toward +35 degrees, running ahead of the sun. This will allow some time for the sun to move up the ecliptic. In mid to late April, we can then raise ALAT to about +25 deg, drift past the sun for a couple of weeks, drop ALAT back to 0 at ALON ~325, then chase the sun back to 0/0, as before".

Thanks very much to Stacey for the explanations.

UO-22 Returns to Service

After several short breaks to service, UO-22 is again operational. Some new software has been loaded to try and keep the downlink operating most of the time.

Chris Jackson reports: "It seems that after around 60 000 charge/discharge cycles the Nicad batteries are starting to show their age (!!) and it's probable that the power system will no longer be able to support operations when UO-22 enters a period of eclipse in a few months time (around 20th April 2003 ... according to the SatSpy program ...vk3jt) although we'll do all we can to try and keep it operational. The downlink will also be switched off from time to time over certain parts of the globe. Generally these quiet periods should be out of range of most stations. Currently, they are in the middle of the Pacific Ocean, Indian Ocean, and central China. This is required to allow the attitude control system to operate correctly since the power system can not supply enough power to support both the transmitter and the magnetorquers. Enjoy the bird while you can! At 11 1/2 years it's doing well, but it may not be available for a lot longer."

When I last worked UO-22 my antenna system had suffered damage from high winds but the signal was loud and clear for about half the pass. Then it took a dive and almost disappeared. No data was retrieved on the latter half of the pass. This situation seemed to repeat each pass so there may be some problem with the orientation of UO-22 causing its antennas to be obscured for some of each pass. Or – it could be something to do with the damage to my antenna system. Perhaps it is a function of the power restraint problems mentioned by Chris in the above message. UO-22 has been one of the most reliable satellites ever devoted to the amateur radio satellite service.

Since its launch it has provided two wonderful areas of service to radio amateurs. It has serviced packet radio enthusiasts worldwide by the courtesy of a network of "satgate" stations setup and maintained by volunteer operators. At times there were up to 50 such stations operating and they were responsible for much of the overseas packet radio mail forwarding. It also provided a host of high speed digital comms enthusiasts with a flying bulletin board using store and forward techniques. Chris's wonderful program WiSP was developed with this group in mind and still provides a stable platform to which many operators entrust the control of their entire satellite stations.

UO-22 will be sadly missed by all digital satellite operators should it fail to respond to the measures Chris has outlined above. Its two 'companion' satellites KO-23 and KO-25 have had checkered careers and have now failed altogether so the old reliable UO-22 is holding the fort once more. There is already much discussion among satgate operators on a strategy to continue this service in the event that UO-22 is lost. If no other suitable satellites are launched in the near future, the packet radio community may have to rely on Internet forwarding. I for one would be sad to see another amateur radio link bite the dust in favour of the Internet. But you never know what's just around the next corner.

New Award for Working the ISS

The ISS Fan Club is proud to announce the introduction of the "ISS Achievement Award". http://www.issfanclub.com/iaa

The IAA is the first ham-radio award issued for making contact with the International Space Station. It is a handsome award, printed on picture quality paper. It would grace any radio shack wall.

Here are the award rules:

1. The "ISS Achievement Award" is given for contacting or listening to the ISS International Space Station using amateur radio. There are 3 different categories:
   (a) VOICE (for 2 way QSOs)
   (b) PACKET (for successful sending or reading of a PMS message or using the digipeater).
   (c) SWL (for receiving the ISS: Voice and/or Packet)

   Others categories, like SSTV, will be added when they become operational on ISS.
2. Applications will be accepted beginning December 15, 2002. Contacts may have been made at any time since November 2, 2000.
3. The applicant must auto-certify the authenticity of log information he provides by sending a normally compiled QSL card for each category he wishes to claim.
4. This award is available to all Amateur Radio and SWL operators anywhere in the world.
5. The donation necessary for the ISS Achievement Award is US$10. Stickers for category upgrade are available for US$3. This is a no-profit award. All collected money will be spent for printing, postage and handling costs. Any excess funds will be donated to AMSAT-NA.
6. Applications for the award or for category update must be sent by priority mail to:
   Claudio Ariotti, IK1SLD
   Via Montessori, 6
   15033 Casale Monferrato (AL)
   ITALY.
7. Processing status, award listings and more information will be available at: www.issfanclub.com/iaa (This information courtesy of the ISS FanClub).

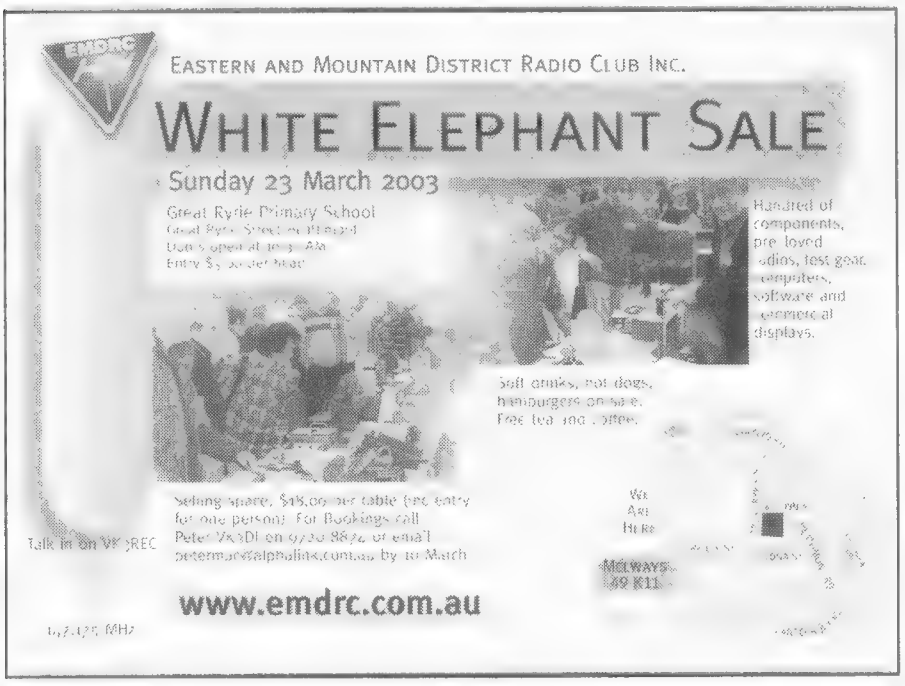
ARISS Meeting gives approval for APRS Experiment on ISS

The December 2002 meeting of the ARISS team considered a proposal from Bob Bruninga to incorporate an APRS transceiver into a US Navy solar cell experiment which is to be launched to ISS around the middle of 2003.

Approval was given for Bob's proposal and should it be carried through it will add another facet to the expanding world of satellite APRS. The reliability of power on ISS should overcome many of the shortcomings of the present dedicated APRS satellite (PCsat), NO-44. PCsat has been plagued by power deficiencies since launch and has required heroic efforts on the part of many control stations around the world to keep it operational.

The new device will be known as PCsat2 and details should be available on the ARISS website shortly. So dust off the Kenwood TD-H7 or whatever and the GPS and get ready. A reliable APRS satellite should give this field of endeavor the shot in the arm it has needed for a few years. I can already imagine my friends tracking me on their computer screens as I make one of my frequent car trips from Milawa to Perth. Using PCsat2 on board ISS and having regard to ISS's reliable 6 or 7 orbits per day, its use as an automatic APRS positional digpeater for outback travellers will become quite feasible. The footprint isn't quite big enough to cover the entire continent from east to west but nevertheless it will enable good tracking across wide stretches of the outback. The experiment will remain on board ISS for one year. Good on you Bob!

nr


EASTERN AND MOUNTAIN DISTRICT RADIO CLUB INC.
WHITE ELEPHANT SALE
Sunday 23 March 2003
Great Ryde Primary School
Hundred of components, pre loved radios, test gear, computers, software and commercial displays.
Stall grubs, not dogs, hamburgers on site.
www.emdrc.com.au

Amateur Radio – an essential in every shack!

Ross Christie, VK3WAC
19 Browns Road, Montrose 3765, Vic.
Email Vk3wac@aol.com

Disturbing news for the world of amateur radio

The recent North Korean operation by Ed, P5/4L4FN has come to an end. The North Korean authorities called a halt to Ed's amateur radio activities on the 22nd of November according to a press release from Bruce Paige, KK5DO. Apparently, Ed was called to an impromptu meeting with the authorities on the Friday evening at which he was requested to cease all amateur radio transmissions and to pack his amateur equipment into boxes. His Saturday was spent dismantling the antennas on his roof and packing the equipment and in the mid afternoon an official called at Ed's house and placed a seal on the equipment boxes and antennas. At the same time Ed was requested to remove the equipment from the country when he departed on his next leave period on the 10th of Dec. Ed also says "for a number of reasons" he feels sure that there will be no further P5 activity in the future.

This is disturbing news for the world of amateur radio because P5 had been one of the most wanted entities for many years. Ed spent a lot of time on air trying to get as many contacts from P5 into as many logbooks as he could giving many of us a chance to work this 'rare one', a chance that, hopefully, may re-appear in the not too distant future. One can only guess at the reasons behind the North Korean governments' decision for halting amateur operations, but perhaps the recent international tensions may be to blame. Lets hope that P5 is not QRT for long!

A few months ago Great Britain and the United States released spectrum for trial on a new amateur band at 60 metres (the UK has allocated five channels each 3 kHz wide at 5260, 5280, 5290, 5400 and 5405 kHz). Extensive propagation studies have been conducted on both sides of the Atlantic and results are being collated for submission to the authorities for a permanent amateur allocation. Canadian hams have also recently been granted similar access and are enjoying exploring the properties of this new band. According to VO1NA (and DL8AAM) The Marconi Radio Club of Newfoundland has been granted authority to perform experimental transmissions using CW (A1A) and USB SSB (J3E) on 5260, 5269, 5280 5290 5319, 5329, 5400 and 5400 kHz using the call sign VO1MRC. The authorisation is only valid for short periods (22nd till the 25th of November 2002, 20th till the 23rd of December 2002 and the 20th until the 23rd of June 2003). Essentially, the experiment will examine the differences in ground and sky wave propagation on 3.5, 5.3 and 7 MHz. Over the past few years amateurs in many countries have been granted permanent (or long term access) to spectrum at 73 kHz, 136 kHz (and now 5.2 MHz) by their respective governments while we in Australia have had to be content with the occasional 'test' on 136 kHz. Is there any good reason why we in VK are precluded from participating in similar activities on similar frequencies?

Meanwhile, David VK8AA/VK2CZ says that all VK hams will get access to the segment 3776 to 3800 kHz beginning on the 1st of January 2004. The WIA has been negotiating with the ACA for extended access to this 'DX slot' at the top end of the 80 metre band for some time now and it seems that their efforts have finally paid off. We should show our appreciation to the WIA and its negotiators by supporting the WIA by becoming members, and remaining long term members. Perhaps the same negotiating team can take up the challenge of gaining permanent access to an amateur allocation at 136 kHz and 5.2 MHz?

I have been busy these past few days installing SSTV and PSK31 software onto my shack PC and becoming familiar with it. The sound card will need a simple interface circuit to allow audio level adjustment to and from the transceiver and it will also require a control line from the PC serial port to operate the PTT line. So hope to work you soon on CW, PSK31 or even SSTV.

The DX

9G, GHANA. Arno, DL1CW and Andy, DL3G are planning a trip over the period of the 5th until the 18th of February. They have applied for the calls 9G5AP and 9G5GA but have not had confirmation that these will issued. The pair plan to be on all bands 80 – 10 metres including WARC and 6 m using CW, RTTY and some SSB. They plan to enter the WPX RTTY and ARRL DX CW contests too. [TNX DL1CW and The Daily DX]

A5, BHUTAN. Dr. Glenn Johnson, W0GJ, is heading back to Bhutan for a month. He is expecting to be on air from the 3rd until the 26th of Feb. Glenn will be operating during his spare time and will make a special effort on CW on 3505 kHz during the local mornings and evenings. He will be running an amplifier to a loaded vertical and will use a separate antenna (beverage) for receiving. Listen out for him on 30 and/or 40 metres if conditions on 80 m are poor and on the higher bands after his dawn. QSL via W0GJ. [TNX W0GJ and The Daily DX]

AC8, ST. KITTS. Stan, AC8W, and Hank, K8DD, are planning to be active from St. Kitts between the 12th and the 19th of Feb 2003. They also intend to participate in the ARRL CW DX Contest. They may

also have one or two more operators tagging along for the activity. The pair have applied for individual personal calls in addition to a contest call. Prior to the contest, and after, they will be on the WARC bands using PSK31 and RTTY. QSL will be via home calls. [TNX AC8W and The Daily DX]

C6, BAHAMAS. Bill, KM1E (C6AGN) will be active on all bands 160 - 6 metres from his QTH in the Bahamas from the 4th of January until the 4th of March. QSL via W1DIG. [TNX KM1N and The Daily DX]

FG, GUADELOUPE. Pierre, F6FXS, will be holidaying at his son's QTH on the main island of Guadeloupe (IOTA NA-102 - DIFO FG001) using the call FS/F6FXS between the 12th of Feb and the 12th of March. He will be operating CW, running about 30 watts from an IC706 to wire antennas. Activity will mainly take place at his local mornings and evenings on 40 – 10 metres. Try around 14030, 18070, 21030 or 28030 kHz +/- QRM. QSL either direct or via the bureau. [TNX F6FXS and OPDX]

FR, REUNION ISLAND. Freddy, F5IRO, expects to be active as FR/F5IRO until the end of February. He says that he will apply for permission to operate from Juan da Nova and Glorioso islands. [TNX F5IRO and OPDX]

HR, HONDURAS. Gerard, F2JD is currently in Honduras and will remain until the 3rd of March. He will be active signing HR5/F2JD on all bands 160-6 metres using SSB and CW. He expects to be located at La Entrada de Copan but he will attempt some IOTA operations. QSL via F6AJA either direct or through the bureau. [TNX F2JD and 425 DX News]

ST, SUDAN. Marco, ST1MN expects to be in Sudan until the end of June 2003. He is new to DX operations and pile-ups so please go easy on him. Marco says he will attempt to operate on all bands at some time during his stay. Claudio, IV3OWC (ex 9E1C) plans to join him in late March or early April and will be active as ST1C. QSL for either ST1MN or ST1C is direct only to IV3OWC. [TNX IV3OWC and 425 DX News]

YA, AFGHANISTAN. Hiro Nakanishi, JA1CQT received written permission from the Afghani authorities on the 12th of November to operate as YA1CQ. He had a short visit to Kabul in late Nov but will be back in mid December for a longer stay. QSL via home call. [TNX JA1CQT and The Daily DX]

V3, BELIZE. Gisela, DK9GG and Gerd, DJ4KW will be operating as V31GW and V31YN from Belize from the 9th of Jan until the 25th of Feb. They will mainly be using CW and SSB On the 8th of Feb they will be joined by Frank, DL2SWW and Gabi, DG2TM (V3 calls not known as yet) and the four plan to operate from NA-073 over the 21st till the 23rd of February. QSL via home calls. [TNX DL2VFR and 425 DX News]

VP6, PITCAIRN ISLAND. Ed, W2SN, say that he will be active from Pitcairn Island as VP6EM on the 4th of Feb between 1700 and 2359 GMT. Activity will take place on 10, 15 and/or 20 meters SSB and will depend on propagation. QSL to W2SN. [TNX W2SN and OPDX]

VQ9, DIEGO GARCIA. Larry, WD0HSP has retired from the US Navy and has taken up a civilian job on Diego Garcia (AF-006) and will be active as VQ9LA for at least the next year. He plans to operate on all bands 80 - 6 metres using RTTY, SSB, CW and FM. QSL direct only to DG21 Larry Arneson, PSC 466, Box 24, FPO AP 96595-0024, USA. [TNX WD0HSP and The Daily DX]

YI, IRAQ. Mike, OM2DX is based in the Slovak embassy and will be using the call YI9OM for a few weeks while awaiting his own call (YI9DX) to be issued from the Iraqi authorities. He will remain in Iraq for two to four years and has plans to operate on all bands using CW, SSB, RTTY and PSK 31 modes. Mike also likes 160 metres and topband operators should listen for him after 20.30 UTC on 1832-1833 kHz. [TNX OM3JW and 425 DX News]

Special Events

ZS, SOUTH AFRICA. The special callsign ZS90SAP will be on air from the 1st of January until the 31st of December 2003 to celebrate the **90th anniversary** of the establishment of the **South African Police Service**. The SAPS was formed in 1913 to enforce law and order and to preserve a peaceful environment for all the peoples of South Africa. Members of the Vaal Triangle Amateur Radio Club, under the leadership of Jan Swanepoel, ZS6ZYM, will man the station signing ZS90SAP throughout 2003. The callsign will be active on the 80 – 10 metres (exc. WARC) as well as 6 metres. QSL cards will only be sent on receipt of your QSL card. QSL cards can be sent via the bureau or direct to ZS90SAP: Jan Swanepoel, PO Box 14393, Zuurfontein, 1912, South Africa. [TNX ZS6ZYM and OPDX]

ER, MOLDAVA. The special event call ER60SB was active during November 2002 but will also be back on air from the 23rd of Jan until the 2nd of Feb 2003. The ER60SB call is to commemorate **the 60th anniversary of the Battle of Stalingrad**. QSL via ER1DA either direct to Valery Metaxa, P.O. Box 3000, Chisinau, MD-2071, Moldova or via the bureau. [TNX ER1DA and 425 DX News]

SP, POLAND. Twelve stations will be on the air from Poland to commemorate the **70th anniversary of the breaking of the German code machine Enigma by Polish cryptographers**. The stations will be on the air from the 15th of Dec until the 15th of March. Further information on the Enigma research can be found at http://www.enigmahistory.org/enigma.html and is well worth a look. The stations and calls are as follows;

HF70E (QSL via SQ9AOJ) S N 7 0 E (QSL via SP6CDP)
HF70N (QSL via SP7CVW) S N 7 0 N (QSL via SP6JKH)
HF70I (QSL via SP6IHE) SN70I (QSL via SP5PPK)
HF70G (QSL via SP2DNI) S N 7 0 G (QSL via SP1PBT)
HF70M (QSL via SP2PI) S N 7 0 M (QSL via SP5ZCC)
HF70A (QSL via SP9PRO) S N 7 0 A (QSL via SP9EVP)

A special 'Enigma Award' is being sponsored by the SP DX Club and is available for working these stations. For further information on the award visit http://www.sp5zcc.waw.pl/en/enigma.html. [TNX SP1DPA, SQ9MZ and 425 DX News]

DXpeditions

After the great success of the first Ducie Island DXpedition (in 2002) the second DXpedition to **Ducie Island,** planned for March 2003, is eagerly awaited by all DX'ers. Yoichi, JR2KDN, will be the team leader of the DXpedition and says they are expecting to begin operating from Ducie Island around the 8th of March and if all goes well activity should last for approximately one week. Transport to and from the island will be on board the Braveheart (a charter boat that has transported other DXpedition teams to other rare locations) and Yoichis says, "all other preparations are well in hand". The operators of the multinational team will consist of Yoichi (JR2KDN), Kan (JA1BK), FO3BM, Cookie (VP6AZ), Dave (VP6DB), Meralda (VP6MW) who will be the CW operator on 17 and 12 metres, and possibly a few more JA's. Further details of the DXpedition will appear in the March edition of AR. [TNX JA1BK, CADXA and OPDX]

Round up

Ever wondered why you can hear US stations on 40 metres but they never answer when you call them? Well, John (NT5C), who is one of the more successful US 40m SSB DXers, would like to pass on some advice to non-US stations on where to transmit on 40 metres in order to be heard in the USA. He says "below 7100 kHz most integral multiples of 5kHz, e.g. 7050, 7055, 7065, 7085, etc are 'owned' by nets and ragchewers in Central America, South America and Canada. The odds are much better for 40 metre DX'ers if they get between those integral 5kHz multiples. Good frequencies to try are 7047, 7052 and 7057 kHz which are above most of the CW but below the RTTY." So if you want to be heard in the US then you'll have to be tricky and tune in between the nets and wafflers.

The summer months in the Southern Hemisphere are when fresh crews and supplies are delivered to the various bases and research stations in Antarctica. The crews that have just finished wintering over will be looking forward to going home and thawing out after a long, cold and dark tour. Some of these fresh crews will be amateur radio operators who will be glad to hear the sound of a new voice after a while. Among them will be the following;

DP1, ANTARTICA. Felix Riess, DL5XL who will be serving as radio operator and electronics engineer at the German "Neumayer" base (WABA DL-03) on the Eckstrom Ice Shelf (AN-016), Antarctica from March until November 2003. He hopes to be active whenever time permits mainly on CW but also on SSB, RTTY, PSK31 and HELL using the call DP1POL. QSL via DL1ZBO either direct to Rainer Hilgardt, Hans-Sachs-Weg 38, D-64291 Darmstadt, Germany or via DARC bureau. For further information on Neumayer Station please visit their website at: http://www.awibremerhaven.de/Polar/neumayer1.html [TNX DL5XL and 425 DX News]

KC4, ANTARCTICA. Dave, NK3T is currently active as KC4/NK3T from McMurdo Station (AN-016, WABA K-09) Antarctica. He is normally on air between 0230 and 0400 UTC around 14243 kHz. Dave will be there until early Feb. QSL via NK3T. [TNX ARRL DX Bulletin]

R1A, ANTARCTICA. Wally, RU1ZC (R1ANZ) will be staying at Mirny base (WABA UA-07, IOTA AN-016) for another season until 2004 (I suspect he dislikes the heat in Moscow!) He can usually be found on 14160 kHz around 15.30 UTC when he has a regular daily sched with his friends in Russia. [TNX DL5EBE and 425 DX News]

HL, ANTARTICA. Lee, DS4CNB is heading south to join the team at the Korean base "King Sejong" (WABA HL-01) which is located on King George Island, South Shetlands (AN-010). Lee will be stationed here from the 1st of Dec 2002 until the 30th of Nov 2003. He plans to put in some activity on all bands and modes using either HL0KSJ or D88S as his callsign. QSL via DS4CNB or direct to Lee Dae Ryung, P.O Box 30, Tongyung 650-600, South Korea. [TNX DS4CNB and 425 DX News]

Roving **DX'er Mirek, 9V1XE,** is moving back to Australia from Singapore. After operating in Australia as VK3DXI and VK2DXI he will now sign VK6DXI from Perth. Mirek has been very busy during his time in Singapore making nearly 12,000 QSOs on all bands and modes during his 4 year stay. All his logs are now in the possession of DL4DBR. He requests those who still need a direct card for 9M8DX/2 or Z2/VK3DXI to please 'stand by' for a few months while he settles in Perth. [TNX 9V1XE/VK6DXI and 425 DX News]

Sources

This is the first DX Notes column of 2003 and, just like last year, the DX information is presented with the permission and courtesy of the following individuals and organisations. KK5DO, DL1CW, W2SN, ER1DA, 9V1XE/VK6DXI, IZ8DBJ, DS4CNB, DL5EBE, DL5XL, NT5C, SP1DPA, SQ9MZ, JA1BK, ZS6ZYM, OM3JW, WD0HSP, JA1CQT, F2JD, IV3OWC, F5IRO, K1MN, F6FXS, W0GJ, DL2VFR, AC8W, OPDX (BARF80), CADXA, ARRL DX Bulletin, The Daily DX and 425 DX News

"Hey, Old Timer..."

If you have been licensed for more than 25 years you are invited to join the

Radio Amateurs Old Timers Club Australia

or if you have been licensed for **less than 25 but more than ten years,** you are invited to become an **Associate Member** of the RAOTC.

In either case a **$5.00** joining fee plus **$8.00** for one year or **$15.00** for two years gets you two interesting OTN Journals a year plus good fellowship.

Write to

RAOTC,
3/237 Bluff Road
Sandringham VIC 3191

or call Arthur VK3VQ on **03 9598 4262** or Allan VK3AMD on **03 9570 4610**, for an application form.

W.I.A. DXCC Standings (335)

(Dec 31st. 2002)

Callsign	Countries
Honour Roll (326) Phone	
VK5MS	335/389
VK4LC	335/382
VK4UA	335/371
VK5WO	335/368
VK6LK	335/360
VK3AMK	335/354
VK3QI	335/349
VK3AKK	335/348
VK3DYL	335/341
VK3SX	335/341
VK2FGI	335/341
VK3EW	334/340
VK6NE	333/349
VK1ZL	333/339
VK6HD	332/358
VK3OT	330/344
VK4OH	330/337
CT1EEN	330/000
VK2AVZ	329/340
VK3CSR	329/338
VK2DEJ	329/335
VK4AAR	328/332
VK3YJ	327/333
General listing-Phone	
VK7BC	324/329
EA3AKN	323/331
VK5FV	323/326
VK4SJ	321/322
VK6VS	319/323
VK6ABS	316/000
VK4LV	313/307
VK3JI	310/325
VK6APK	310/315
VK5WV	306/326
VK6RO	306/312
VK4ICU	303/305
VK2UK	302/307
VK3IR	302/306
VK1TX	300/000
VK6LC	299/302
VK6DY	297/301
JA3EY	296/300
VK4DP	293/305
VK4EJ	291/293
VK2HV	288/000
VK2CSZ	286/289
VK7TS	285/286
VK4BAY	283/286
VK3DP	274/277
VK6ANC	267/271
VK2CA	265/000
VK3UY	264/266
VK3VQ	261/278
VK5IE	258/261

Callsign	Countries
General listing-Phone	
VK8NSB	255/000
VK3CIM	254/258
VK2FHN	232/000
VK8KTC	231/233
VK6APW	228/229
VK4AO	227/000
VK8AM	225/000
VK3SM	222/242
9V1RH	216/218
VK4IL	212/000
VK3DVT	201/204
VK6BH	200/000
PY2DBU	195/197
VK7JAB	186/000
G0VXX	184/000
VK6APH	168/169
VK4CHB	167/168
VK2BQS	164/167
VK4BP	164/000
LU5DSE	161/000
VK4ARB	159/160
VK2GSN	152/000
VK7LUV	148/000
VK2EJK	144/000
VK2SPS	141/143
OK1ZSZ	136/000
VK8LC	136/000
VK3DQ	133/147
VK2LEE	130/132
VK4FNQ	130/000
VK4VIS	126/128
VK2IRP	125/101
TG8NE	125/000
SM6PRX	121/126
VK2MH	116/118
VK2YN	113/115
VK5UO	112/115
JA8XDM	111/000
C21DJ	109/000
VK3MRG	108/000
ZS6IR	102/104
C21NJ	102/000
VK2FZR	102/000
SV1GYG	102/000
VK2EJM	101/103
VK3KTO	101/102
VK1PRG	101/000
VK6ISL	100/000
VK9RS	100/000
3W2LC	100/000
Honour Roll(326)CW	
VK3QI	334/346
VK6HD	333/354
VK5WO	331/347

Callsign	Countries
General listing-CW	
VK3AKK	312/317
VK3KS	307/335
VK4LV	297/300
VK4ICU	291/000
VK3JI	274/299
VK6MK	249/252
VK7BC	246/255
VK3DP	245/247
VK2CWS	245/247
VK4DA	237/239
VK3CIM	235/236
VK3DQ	234/261
VK7TS	219/000
IK1ZOD	210/000
VK4DP	205/216
VK7RO	201/204
VK2YN	201/203
VK6HW	179/182
VK5UO	171/172
VK4UA	151/164
OK2BNC	144/000
VK4AAR	143/145
VK8AM	138/000
N0TM	135/000
VK7DQ	131/132
DK6AP	120/000
VK8KV	112/113
K5QNM	110/113
VK5BWW	110/113
SM6GZN	110/111
OK1FED	109/000
VK4CXQ	106/000
UR5BCJ	103/105
VK3DG	102/000
SM6PRX	101/102
Honour Roll(326) Open	
VK7BC	334/343
VK6HD	333/360
VK5WO	335/372
VK4UA	335/372
VK4LC	335/382
VK4AAR	330/334
VK3UY	333/336
VK3QI	335/350
VK3OT	333/347
VK3AMK	335/354
VK3AKK	335/348
VK2AVZ	329/340
General listing-Open	
VK3JI	322/351
VK4LV	320/319
VK4DV	313/328
VK2UK	313/308
VK6RO	312/318

Callsign	Countries
General listing-Open	
VK4ICU	311/313
VK4DP	309/323
VK3DP	305/308
VK6LC	301/304
VK7TS	295/296
VK2HV	289/000
VK3CIM	284/288
VK3VQ	276/293
VK6ANC	269/273
VK6MK	256/259
VK8NSB	255/000
PY2DBU	254/257
VK5UO	251/255
VK2CWS	251/253
VK3DQ	246/275
VK6APW	239/240
VK4DA	237/239
VK2FHN	237/000
VK8AM	236/000
VK2YN	204/206
VK2BQS	182/185
VK4CHB	177/179
VK6APH	171/172
9A4KA	168/000
SM6PRX	162/169
VK3VB	153/155
VK2SPS	142/143
ON9MCR	129/140
VK3OZ	126/127
VK7CQ	123/125
NOMSB	117/000
VK3MRG	109/000
VK9RS	101/000
VK2AJE	100/000
General listing-RTTY	
VK3EBP	253/255
VK3AMK	200/202
VK2BQS	125/127
SP3CUG	124/000
VK5RY	100/102
Gen-listing 6m. Open	
VK4FNQ	137/000
VK4ABW	109/000
Gen-listing-2m. Open	
(Vacant)	
Gen-listing-Satellite	
VR2XMT	112/114
General listing-SSTV	
no repeater contacts	
(Vacant)	
General listing-Digital	
(Vacant)	
General listing-Fax	
(Vacant)	

The W.I.A. DXCC program has been audited to the month of December, if you find your Callsign not listed it means you have not updated in the past 5 years or your score has dropped below 100.

All of the Federal Awards are now computerised and we are in the process of digitising all existing documents. We have developed our Award Documents using the standard Microsoft Excel program, these are saved to a common file that will run on Excel 5.0/95 & 97-2002 versions.

For those that are on internet email system we recommend you enjoy the fast service offered by our new computerised awards system. We are still trialing our National Website for down loading all of the awards and it may be in full download mode early 2003. (Website: http://www.wia.org.au)

Awards are available by email or hard copy via the post. Email to awards@wia.org.au or post to Federal Awards Manager P.O.Box 196. Cannington. Western Australia. 6987. "de Mal. VK6LC"

Ian Godsil VK3VP

Contest Calendar February - April 2003

Feb	8/9	CQ WW RTTY WPX Contest		
Feb	8	Asia-Pacific Sprint 40-20m	(CW)	
Feb	8/9	PACC Contest	(CW/SSB)	
Feb	8/9	RSGB 160 Metres Contest	(CW)	
Feb	15/16	ARRL International DX Contest	(CW)	(Feb 03)
Feb	21/23	CQ WW 160 Metres	(SSB)	
Feb	22/23	REF Contest	(SSB)	
Feb	22/23	UBA DX Contest	(CW)	
Mar	1/2	ARRL International DX Contest	(SSB)	(Feb 03)
Mar	1/2	Ukraine RTTY Contest		
Mar	8/9	RSGB Commonwealth Contest	(CW)	
Mar	15/16	John Moyle Field Day	(CW/SSB)	(Feb 03)
Mar	15/16	Russian DX Contest	(CW/SSB)	
Mar	29/30	CQ WW WPX Contest	(SSB)	
Apr	5/6	SP DX Contest	(CW/SSB)	
Apr	11/13	Japan International DX Contest	(CW)	
Apr	19	Holyland DX Contest	(CW/SSB)	
Apr	19	TARA PSK31 Rumble		
Apr	19/20	YU DX Contest	(CW/SSB)	
Apr	25	Harry Angel Memorial Sprint	(CW/SSB)	
Apr	26/27	Helvetia Contest	(CW/SSB)	

John Moyle Field Day Contest 2003

presented by Eric VK4NEF

15 - 16 March, 2003
0100 UTC Sat–0059 Sun

Well, once again those who enjoy a weekend in the bush should be planning for this year's John Moyle Field Day.

The rules 5, 6, 12, 13, and 17 have changed.

If anyone wishes to contact me privately to discuss rules etc, my home phone number is 07 3390 5664, and my address is as shown in the Log Submission section below. I wish all entrants good luck, and look forward to hearing you on air during the contest!

Overview

1. The aim is to encourage and provide familiarisation with portable operation, and provide training for emergency situations. The rules are therefore designed to encourage field operation.
2. The contest takes place on the 3rd full weekend in March each year, and runs from 0100 UTC Saturday to 0059 UTC Sunday, 15-16 March 2003.
3. The contest is open to all VK, ZL and P2 stations. Other stations are welcome to participate, but can only claim points for contacts with VK, ZL and P2 stations.
4. Single operator portable entries shall consist of ONE choice from each of the following (e.g. 6 hour, portable, phone, VHF/UHF):
   a. 24 or 6 hour;
   b. Phone, CW, or All mode;
   c. HF, VHF/UHF or All Band.
5. Multi-operator portable entries shall consist of ONE choice from each of the following (e.g. 24 hour, portable, phone, VHF/UHF):
   a. 24 or 6 hour;
   b. Phone, CW, or All mode;
   c. HF, VHF/UHF or All Band.
6. Home and SWL single operator entries may be either 24 hours or 6 hours, All mode, All band.

Scoring

7. Portable HF stations shall score 2 points per QSO.
8. Portable stations shall score the following on 6m:
   a. 0-49 km, 2 points per QSO;
   b. 50-99 km, 10 points per QSO;
   c. 100-149 km 20 points per QSO;
   d. 150-199 km 30 points per QSO;
   e. 200-499 km 50 points per QSO;
   f. 500 km and greater, 2 points per QSO.

9. Portable stations shall score the following on 144MHz and higher:
   a. 0 to 49 km, 2 points per QSO;
   b. 50 to 99 km, 10 points per QSO;
   c. 100 to 149 km, 20 points per QSO;
   d. 150 km and greater, 30 points per QSO.
10. For each VHF/UHF QSO where more than 2 points is claimed, either the latitude and longitude of the station contacted or other satisfactory proof of distance must be supplied.
11. Home stations shall score:
   a. Two points per QSO with each portable station.
   b. One point per QSO with other home stations.

Log Submission

12. For each contact: UTC time, frequency, station worked, RST/ serial numbers sent / received and claimed score. (VHF and above location of other station and distance.)

    Logs must be accompanied by a summary sheet showing: callsign, name, mailing address, section entered, number of contacts, claimed score, location of the station during the contest, and equipment used, and a signed declaration stating "I hereby declare that this station was operated in accordance with the rules and spirit of the contest and that the contest manager's decision will be accepted as final". For multi-operator stations, the names and callsigns (legible) of all operators must be listed.
13. Paper logs may be posted to "John Moyle Contest Manager, 108 Queensport Road, Murarrie Qld 4172, Australia". Alternatively, logs may be e-mailed esr@powerup.com.au The following formats are acceptable: ASCII text or Office. Logs sent by disc or e-mail must include a summary sheet and declaration, but the operator's name (legible) is acceptable in lieu of a signature.

    Logs must be postmarked no later than 28 April, 2003.

Certificates and Trophy

14. At the discretion of the Contest Manager, certificates will be awarded to the winners of each portable section. Additional certificates may be awarded where operation merits it. Note that entrants in a 24 hour section are ineligible for awards in a 6 hour section.
15. The Australian portable station, CW section, with the highest CW score will be awarded the President's Cup, a perpetual trophy held at the Executive Office, and will receive an individually inscribed wall plaque as permanent recognition.

Disqualification

16. General WIA contest disqualification criteria, as published in Amateur Radio from time to time, apply to entries in this contest. Logs which are illegible or excessively untidy are also liable to be disqualified.

Definitions

17. A portable station comprises field equipment operating from a power source, e.g. batteries, portable generator, solar power, wind power, independent of any permanent facilities, which is the normal location of any amateur station.
18. All equipment comprising the portable station must be located within an 800m diameter circle.
19. A single operator station is where one person performs all operating, logging, and spotting functions.
20. A single operator may only use a callsign of which he/she is the official holder. A single operator may not use a callsign belonging to any group, club or organisation for which he/she is a sponsor except as part of a multioperator entry.
21. A multi-operator station is where more than one person operates, checks for duplicates, keeps the log, performs spotting, etc.
22. A multi-operator station may use only one callsign during the contest.
23. Multi-operator stations may only use one transmitter on each band at any one time, regardless of the mode in use.
24. Multi-operator stations must use a separate log for each band.
25. A station operated by a club, group, or organisation will be considered to be multi-operator by default.
26. None of the portable field equipment may be erected on the site earlier than 28 hours before the beginning of the contest.
27. Single operator stations may receive moderate assistance prior to and during the contest, except for operating, logging and spotting. The practice of clubs or groups providing massive logistic support to a single operator is, however, totally against the spirit of the contest. Offenders will be disqualified, and at the discretion of the manager, may be banned from further participation in the contest for a period of up to 3 years.
28. Phone includes SSB, AM and FM.
29. CW includes CW, RTTY, and packet.
30. It is not expected that any other modes will be used in the contest, but if they are, they shall be classed as CW.
31. All amateur bands may be used except 10, 18 and 24 MHz. VHF/ UHF means all amateur bands above 30 Mhz. Note: On 6 m, the region below 50.150 has been declared a contest-free zone, and contest CQs and exchanges may only take place above this frequency. Stations violating this rule will be disqualified.
32. Cross-band, cross-mode and contacts made via repeaters are not permitted for contest credit. However, repeaters may be used to arrange a contact on another frequency where a repeater is not used for the contact.
33. Stations may make repeat contacts and claim full points for each one. For this purpose, the contest is divided into eight consecutive three-hour blocks: 01-0359. 04-0659. 07-0959. 10-1259. 13-1559. 16-1859.19-2159. 22-0059 UTC. If you work a station at 0359 UTC a repeat contact may be made after the start of a new block providing, they are not consecutive or are separated by five minutes, since the previous valid contact with that station on the same band and mode.
34. Stations must exchange ciphers comprising RS(T) plus a 3 digit number commencing at 001 and incrementing by one for each contact.

35. Portable stations shall add the letter "P" to their own cipher, eg. 59001P.
36. Multi-operator stations are to commence each band with 001.
37. Receiving stations must record the ciphers sent by both stations being logged. QSO points will be on the same basis as for Home Stations, unless the receiving station is portable.
38. The practice of commencing operation and later selecting the most profitable operational period within the allocated contest times is not in the spirit of the contest, and shall result in disqualification. The period of operation commences with the first contact on any band or mode, and finishes either 6 or 24 hours later.

ARRL International DX Contest

CW: 15/16 February, 2003
SSB: 1/2 March, 2003

1. Object:

1.1. W/VE amateurs work as many amateur stations in as many DXCC entities as possible on 160, 80, 40, 20, 15, and 10 meter bands.

1.2. Foreign amateurs (also including KH6, KL7, CY9, and CYØ) work as many W/VE stations in as many of the 48 contiguous states and provinces as possible.

2. Date and Contest Period:

CW: Third full weekend in February

Phone: First full weekend in March

2.3. Contest Period: 48 hours each mode (separate contests).

Starts 0000 UTC Saturday; ends 2400 UTC Sunday

3. Entry Categories:

3.1. Single Operator:

3.1.1. All Band:

3.1.1.1. QRP.

3.1.1.2. Low Power.

3.1.1.3. High Power.

3.1.2. Single Band.

3.1.2.1. A participant may submit only one single band entry. If contacts are made on other bands, the log file must clearly be marked as Single Band in the header of the Cabrillo file.

3.1.2.2. The same call sign may not be used by a different operator(s) to generate additional single band entries.

3.2. Single Operator Assisted.

3.3. Multioperator:

3.3.1. Single Transmitter.

3.3.2. Two Transmitter.

3.3.3. Multi-transmitter.

4. Contest Exchange:

4.1. W/VE stations in the 48 contiguous United States and Canada (except in the islands of St Paul and Sable) send signal report and state or province.

4.2. DX stations send signal report and power (number indicating approximate transmitter output power).

5. Scoring:

5.1. QSO Points

W/VE stations count three points per DX QSO.

DX stations count three points per W/VE QSO.

5.2. Multiplier

5.2.1. W/VE stations: Sum of DXCC entities (except US and Canada) worked per band.

5.2.2. DX stations: Sum of US states (/except KH6/KL7/), District of Columbia (DC), and Canadian provinces/territories:

NB (VE1, 9), NS (VE1), QC (VE2), ON (VE3), MB (VE4), SK

(VE5), AB (VE6), BC (VE7), NT (VE8), NF (VO1), LB (VO2),

NU (VYØ), YT (VY1), PEI (VY2) worked per band (maximum of 63 per band).

5.3. Final Score: QSO points x multipliers = final score.

6. Miscellaneous:

6.1. Your call sign must indicate your DXCC station location (KH6XYZ/W1 in Maine, KG4/W1INF at Guantanamo Bay, etc).

6.2. The same station may be worked only once per band: no cross-mode or repeater contacts.

6.3. Aeronautical and maritime mobile stations outside the US and Canada may be worked by W/VE stations for QSO credit only.

6.4. DXpedition scores may be included in the Medium and Unlimited club totals only.

7. Submission:

7.1. Entries for the CW competition must be e-mailed or postmarked by March 18, 2003.

7.2. Entries for the Phone competition must be e-mailed or postmarked by April 1, 2003.

7.3. Electronic entries for the CW competition must be e-mailed to:

E-mail CW logs to:

DXCW@arrl.org

7.4. Electronic entries for the Phone competition must be e-mailed to:

E-mail Phone logs to:

DXPhone@arrl.org

7.5. Submissions that are created electronically must be in the Cabrillo file format and must include the log file.

7.5.1. Paper copies of electronic logs are not an acceptable substitute for the electronic Cabrillo format file. Paper logs that are entered into an electronic medium after the contest are considered electronic logs.

7.6. Handwritten paper entries or diskettes should be marked on the envelope as either DX Phone or DX CW entries and mailed to: ARRL 225 Main St, Newington,

CT 06111 USA

7.6.1. Entries for the CW and Phone portions of the competition are considered separate contests and must be submitted in separate e-mails or envelopes to the appropriate contest address.

7.7. Forms for all ARRL contests may be downloaded from the Contest Home Page at: www.arrl.org/contests

7.8. Contest forms and rules may be requested from the ARRL by sending an SASE with 2 units of postage.

8. Awards:

8.1. Plaques (if sponsored) will be awarded in the following categories for both the CW and Phone contests.

8.1.1. Top W/VE scorer in each entry category—single operator-all band-QRP, single operator-all band-low power, single operator-all band-high power, single operator-single band (160-10 Meters), single operator assisted, multi-operator-single transmitter, multi-operator-two transmitter, multi-operator-multi-transmitter.

8.1.2. Top scorer in the single operator-all band category worldwide and on each continent. In addition, worldwide leaders in the single operator-all band-QRP, single operator-all band-low power, single operator-single band, single-operator assisted, multi-operator-single transmitter, multi-operator-two transmitter and multi-operator multi-transmitter categories will receive plaques.

8.1.3. Additional special plaques will be awarded as sponsored.

8.2. Certificates will be awarded to:

8.2.1. Top single operator-all band entries (QRP, low power, and high power) from each DXCC entity and ARRL/RAC Section.

8.2.2. Top single-band entries in each ARRL/RAC section and each DXCC entity.

8.2.3. Top single operator assisted entries in each ARRL/RAC section and each DXCC entity.

8.2.4. Top multi-operator entries (single, two and multi-transmitter) in each DXCC entity, US call area and in Canada.

8.2.5. DX entrants making more than 500 QSOs on either mode will receive certificates.

8.2.6. Additional certificates will be awarded as appropriate.

ar

THE WIA NSW BOOKSHOP

http://www.wiansw.org.au/bookshop/index.htm
email:bookshop@wiansw.org.au

QST QST QST

109 Wigram Street, Parramatta, NSW

PO Box 432, Harris Park, NSW, 2150.

Phone: +61 2 9689-2417

Facsimile: +61 2 9633-1525

Toll free in New South Wales outside Sydney: 1800 817-644

Office Open 11am–2pm Tuesdays & Thursdays

Email: vk2wi@ozemail.com.au

"We endeavour to provide a range of technical books of interest to the Radio Amateur as well as electronics enthusiasts, at competitive prices. Special discounts are offered to WIA members. We are the only bookshop of this type in Australia."

Comprehensive Range

• Antennas • Equipment Construction and Design • Historical • ARRL and RSGB Publications • Educational

Order by mail, fax or email

Knowledge should not be unaffordable

Federal Contest Co-ordinator Position

As reported in November 2002, anyone who would like to assist in preparing Contest information is asked to use the following as a guide. Please contact the WIA Federal President, Ernie Hocking VK1LK, on president@wia.org.au

Federal Contest Co-ordinator — Job Specification

Applicants for the position of Federal Contest Co-ordinator are asked to consider the following guidelines —

1. To report frequently to the member of the Federal Executive appointed to oversee Contest activity and to keep him fully informed, especially of budgetary costs;
2. to liaise frequently with the Federal Office;
3. to write an Annual Report in February each year for presentation at the WIA's Annual General Meeting;
4. to liaise closely with the NZART Contest Co-ordinator;
5. to liaise closely with other Contest Co-ordinators and Managers, both in Oceania and world wide;
6. to produce a monthly information column in "Amateur Radio";
7. to organise for production and forwarding of trophies at various times each year as appropriate;
8. to keep accurate records of trophy winners and to arrange for engraving of Perpetual Trophies;
9. to see that information is available on the World Wide Web;
11. to oversee the supplies of available certificates and to organise replacements when necessary;
12. to write and post certificates on behalf of individual Contest Managers;
13. to arrange a speaker for the annual Remembrance Day Contest and to produce and distribute tapes of the speech for each Division and to arrange for audio to be available on the Internet;
14. to be available via telephone, postal mail and e-mail.

Spring VHF-UHF Field Day 2002: Results

Contest manager: John Martin VK3KWA

Call	Name	Locator(s)	6 m	2 m	70 cm	23 cm	12 cm	9 cm	6 cm	3 cm	TOTAL
Section A: Single Operator, 24 Hours											
VK3AFW	R. Cook	QF32	45	534	600	-	-	-	-	-	1179
VK4OE	D. Friend	QG50, 51, 60, 61	-	282	455	-	-	-	-	-	737
Section B: Single Operator, 6 Hours											
VK3KAI	P. Freeman	QF21, 22, 31, 32	32	387	455	440	320	320	320	430	2704
VK3AXH	I. McDonald	QF12	-	405	425	280	-	-	-	-	1110
VK7MO	R. Moncur	QE37	-	345	485	160	-	-	-	-	990
VK3KME	C. Morley	QF21, 22, 31, 32	43	264	385	256	-	-	-	-	948
VK3AFW	R. Cook	QF32	45	414	365	-	-	-	-	-	824
VK4OE	D. Friend	QG51, 60, 61	-	216	345	-	-	-	-	-	561
VK5ZMH	R. Mitchell	PF94, 95, 96	22	210	295	-	-	-	-	-	527
VK3JS	I. Godsil	QF21	56	183	175	-	-	-	-	-	414
Section C: Multi Operator, 24 Hours											
VK3ATL	(1)	QF21	49	468	540	904	620	320	210	210	3321
VK3EGC	(2)	QF42	54	606	500	592	-	-	-	-	1752
VK3AEF	(3)	PF03	21	252	225	256	-	-	-	-	754
Section D: Multi Operator, 6 Hours											
VK3BEZ	(4)	QF31	47	291	415	456	540	540	430	450	3189
VK3XPD	(5)	QF21	34	279	430	536	440	430	430	440	3019
VK3APC	(6)	QF22	38	339	295	-	-	-	-	-	672
Section E: Home Station, 24 Hours											
VK3FMD	C. Kahwagi	QF22	-	513	705	792	460	330	210	210	3220
VK3RS	A. Sutcliffe	QF32	27	78	130	200	-	-	-	-	435
VK5HKT	K. Thole	PF95	-	126	200	-	-	-	-	-	326
VK3VB	P. Pavey	QF12	22	222	-	-	-	-	-	-	244
VK4EV	R. Everingham	QG62	-	32	-	-	-	-	-	-	32

(1) Geelong ARC:
C. Gnaccarini VK3BRZ, D. Learmonth VK3XLD, L. Sim VK3ZLS.

(2) East Gippsland ARC:
R. Ashlin VK3EK, D. Pendergast VK3DMP, M. Stanford VK3VLR.

(3) J. Bywaters VK3AEF, B. Farmers VK3AQX, L. Ferris VK3BUN, W. Dougan VK3JWD.

(4) Eastern Zone ARC:
J. Morrissey VK3ZRX, J. Collins VK3ZYC, R. Edgar VK3WRE.

(5) A. Devlin VK3XPD, B. Miller VK3BJM, D. Williams VK3KAB.

(6) Moorabbin & District RC:
P. Parker VK3YE, C. Long.

Thanks to all stations who sent in a log, and congratulations to all for their efforts and very good scores. Of particular note this time is the very high score of VK3BEZ - nearly as many points in 6 hours as VK3ATL scored in 24. The 6 hour multi operator didn't attract as many logs as I had expected, and it will be interesting to see what happens with this new section in January.

Now some statistics on participation. To get an idea of the total number of active stations, I added up all of the different callsigns appearing in all of the logs. The figures are below, and I think they speak for themselves!

Call Area	6 m	2 m	70 cm	23 cm	12 cm	9 cm	6 cm	3 cm
VK1	0	2	1	0	0	0	0	0
VK2	0	9	3	0	0	0	0	0
VK3	24	76	36	20	9	5	5	6
VK4	0	8	5	0	0	0	0	0
VK5	2	15	10	0	0	0	0	0
VK6	0	0	0	0	0	0	0	0
VK7	0	6	2	2	0	0	0	0

Healesville Amateur Radio Group Inc. C/o P.O. Box 346, Healesville, Vic, 3777

VK3GH HAMFEST VK3GHA

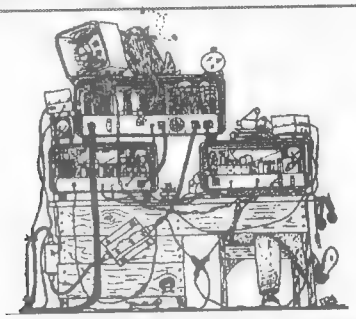
Sunday 23rd February 10am to 2pm

Healesville Memorial Hall

Maroondah Highway, Healesville (Melways 278 C1)

For further information:
Gavin VK3TLN 5968 8482 Carol 5962 6098 or email to
gpt@celestial.com.au

Ham Shack Computers



Part 22 - Computer Test

Alan Gibbs VK6PG
223 Crimea Street, Noranda WA 6062
Email: vk6pg@tpg.com.au

Have you noticed that two computer screens never seem to look quite the same? Which one is right, or are both badly aligned? One might look reddish, another looks whitish/blue and others never fit the screen or have pin cushion distortion. After all, the problem might be in your video driver card and not the monitor! Some computers and/or monitors suffer from colour problems where the screen sometimes loses colour - then mysteriously pops back to normal a few minutes later. Diagnosing these annoying problems is not easy, especially when the major software manufacturers never integrate the software tools to do the job properly. This edition of Ham Shack Computers offers both the right software, and tips on getting your computer screen to look like new again.

Do the basics:

Give both your computer and monitor a good clean up. Remove the video card from the computer and clean the edge contacts with a cloth dipped in methylated spirits. While you are inside the case, blow out dust, dirt, and doggy hairs. Reseat the card firmly in the motherboard. Clean up the monitor, and using a small paintbrush dipped in methylated spirits, thoroughly clean all the contacts on the interfacing cables. Plug back in and "boot up" the computer to check the problem. If it's still there, the fault might be inside the monitor case. Remove the case, blow out the dust and grime, and remove and clean each multi-pin connector one by one. The writer uses CRC 2-26 contact spray in tiny squirts, then reseat the connector back in place. Intermittent faults should now have disappeared, and we can get cracking with the calibration process.

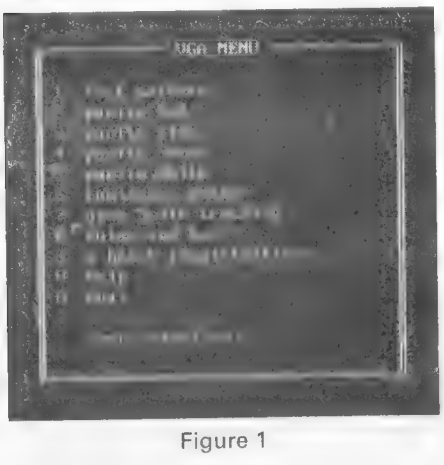


Figure 1

The Software:

Every Radio Amateur should have TESTVGA (1) loaded on their computer. It's a tiny, DOS program that runs nicely on any IBM compatible computer from the old XT's to fast Pentium 4's used today with Windows XP. Install the program in the Accessories Folder and place a shortcut on the Desktop - "click" to run and the TESTVGA Menu pops up seen in Figure 1. Everything needed to calibrate your video card and monitor is included in the menu. Select the number and the pattern will be displayed. For help, press H and a full description of the test is displayed. To return to the test, press Esc (escape).

Test Options

1. A colour test pattern to check and set resolution and chroma intensity

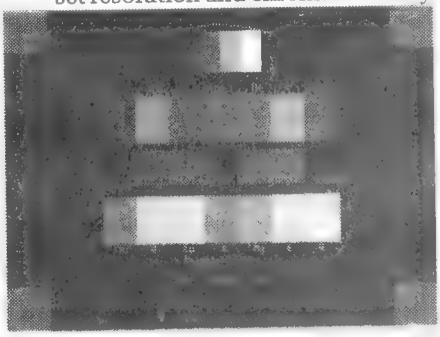


Figure 2

2. Selections 2, 3, 4 and 5 display purity signals to calibrate and match the monitor's RGB drive signals. Small adjustments can be made to each of the preset RGB pots on the display tube base printed card.
3. Selection 7, Grey Scale Tracking is needed for fine adjustments of brightness, contrast and RGB drives to ensure even tracking from black through grey then to white.

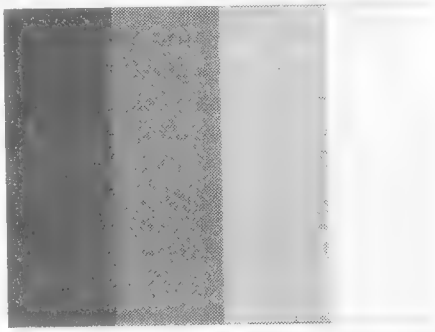


Figure 3

4. Selection 9 is a crosshatch pattern with fine lines used to adjust the horizontal and vertical linearity, and to correct pin cushion problems.

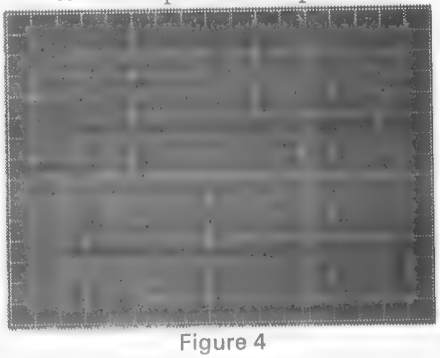


Figure 4

Making these adjustments takes time and patience but with care and determination the overall performance can be enhanced. White should be WHITE without a pinkish tinge, and the shift settings gets your display exactly where it should be.

5. Selection 5 is useful for determining high and low frequency responses. Called a Pulse and Bar waveform and used for the detection of HF ringing, poor electrical connections, bandwidth approximation, and DC restoration faults. For readers looking for "perfection" in their displays - this is the one to use!

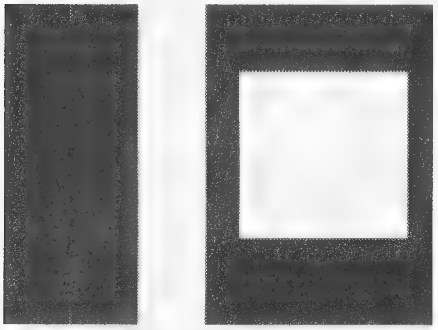


Figure 5.

At this point, readers should consider the complexity of reproducing these images in this publication. Sympathise with our printer because you may not see all of the attributes in the images - especially the pulse on the left-hand side of the image. This pulse is a fast, sine-squared shape used to determine the monitor's ability to display the upper limit of 5MHz in the line sweep. On your own monitor it will (or should be) clearly visible. RA's lucky enough to have an oscilloscope at their disposal will be able to "tweak" HF drive response very accurately. Low frequency problems are displayed as "smear" after the white blocks. The white blocks allow both vertical and horizontal smear errors to be seen on the same test signal.

All monitors and video card drivers these days start at 800x600-pixel resolution. Allowing for line blanking and synchronising pulse duration, this means that one line, non-interlaced, happens in about 52 microseconds. Next divide the 52 microseconds by 800 pixels and you can see that there's not much time for that pulse to make an impression on the viewer let alone in the pages of this magazine! Safety First Remember that very high voltages are lurking inside your monitor. Around 10,000 volts is used for the display tube EHT supply. Although it's a high impedance supply, a nasty "belt" can cause burns and serious stress to those who do not take exceptional care when working inside the case with the power switched on. Readers well versed in constructing high-powered HF/VHF linear amplifiers will understand some of the dangers of working on high voltage equipment. You have been warned!

General Tips

Your computer monitor is much like a normal television set except it lacks the RF front end. Computer signals are not reconstituted into a composite waveform - they are maintained in a RED driver, a Blue driver, and a GREEN driver and fed to individual tube cathodes. By mixing red, green, and blue together they produce WHITE on the screen display. If just one of these drives is a whisker out of calibration, the screen looks slightly coloured from true white. Sometimes, old monitors start to lose emission on one "gun" in the tube. Hence, a small R, G, or B "tweak" can compensate for this effect. True white, known as "Illuminant D", is about 6500 degrees Kelvin, or the equivalent of "North White" standard fluorescent lighting tubes. Readers will note that the computer screen always seems to be "whiter" than the electrical lighting in the shack. Changing to "North White's" used in industrial offices and workshops minimises this effect.

Food for Thought

Perhaps many readers will consider that working inside a computer is potentially dangerous or over complex. Remember that at least you can make adjustments easily to computers. You can upgrade them, change cards, add memory, replace hard drives - which is far easer and much cheaper than trying to work on - or repair some of these modern "black box" transceivers sold today. If you have the technical ability to pass the Amateur Radio Examinations, and run your station - then you'll find that computers are much easier to configure, align and diagnose problems than that "black box" rig costing 10 times that of the computer!

In the near future, Software Controlled Transceivers (SCT's) will be common place. Now is the time to get used to working on your computer because the same principles are being used on new AR equipment - AND they will be cheaper to manufacture and upgrade just like you do now with your own Ham Shack Computer.

Summary

These days, the thought of having access to a full-blown broadcast standard synchronisation and video test pattern generator are "in your dreams". However, this article has shown that a simple, DOS based computer software package can almost replicate a $25,000 broadcast standard - and it's FREE!

TESTVGA was written by Aden Lindsay, VK6ZKI as a broadcast test simulation program for computers. Our gratitude is extended to Aden for the use of his program for this article.

The program can be downloaded free from the Ham Shack Computers Web Site (1) or for readers without Internet access, a $5 note, together with your name and postal address sent to the writer's address at the head of this article will receive a floppy disk by return mail anywhere in Australia or New Zealand.

Ham Tip No. 22.

Run TESTVGA.EXE directly from a floppy disk. You can easily move between different computers, and also make copies for friends. Always keep a "floppy copy" in your software toolbox just in case.

Postscript

One AR operator, a close friend of the writer, had the cheek to take a copy of TESTVGA.EXE on a floppy into a computer shop and asked the salesman to run the program before considering purchase. You guessed it! the monitor suffered from colour distortion so the intending purchaser decided to try another dealer which turned out fine. Just like cars, you can "test drive" computers well before committing your hard-earned cash. There are lots of "lemons" out there, particularly around the secondhand and re-cycled computer marketplace. Don't get caught out!

Ham Shack Computers, Part 23 - next month describes "EchoLink" used for voice and keyboard communications via the Internet, or to establish your own link or VHF/UHF repeater.

(1) Ham Shack Computers Web: http://www2.tpg.com.au/users/vk6pg

73s de Alan, VK6PG

HF Predictions

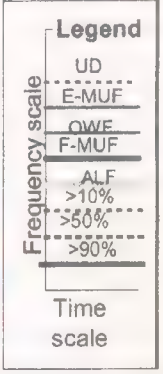
by Evan Jarman VK3ANI
34 Alandale Court Blackburn Vic 3130

These graphs show the predicted diurnal variation of key frequencies for the nominated circuits.
These frequencies as identified in the legend are:-

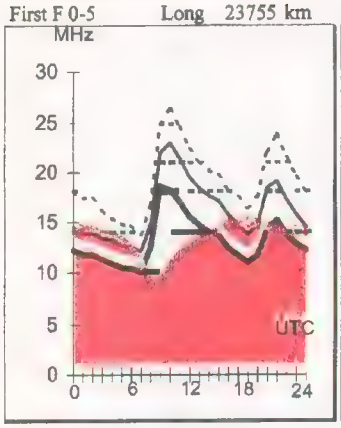
- Upper Decile (F-layer)
- F-layer Maximum Usable Frequency
- E-layer Maximum Usable Frequency
- Optimum Working Frequency (F-layer)
- Absorption Limiting Frequency (D region)

Shown hourly are the highest frequency amateur bands in ranges between these key frequencies, when usable. The path, propagation mode and Australian terminal bearing are also given for each circuit.
These predictions were made with the Ionospheric Prediction Service program: ASAPS Version 4

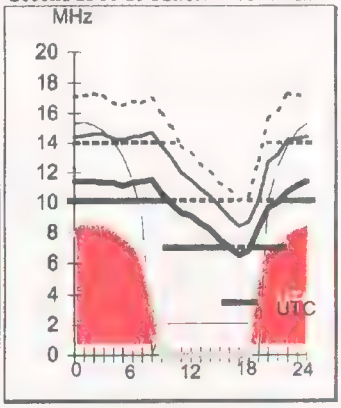
February 2003
T index: 84



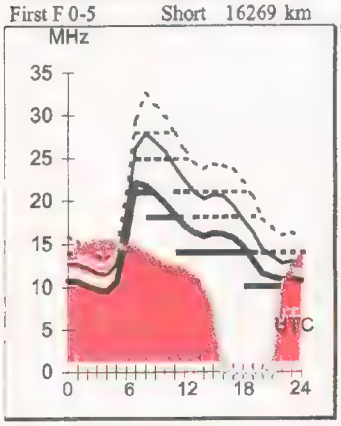
Adelaide-London 132
First F 0-5 Long 23755 km



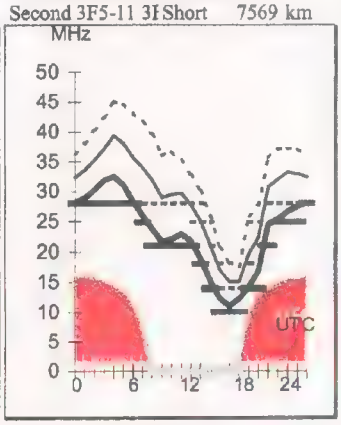
Brisbane-Dunedin 148
Second 2F18-25 2 Short 2561 km



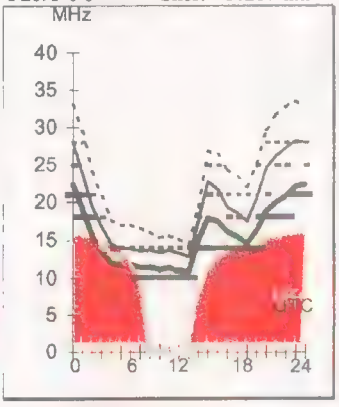
Adelaide-London 312
First F 0-5 Short 16269 km



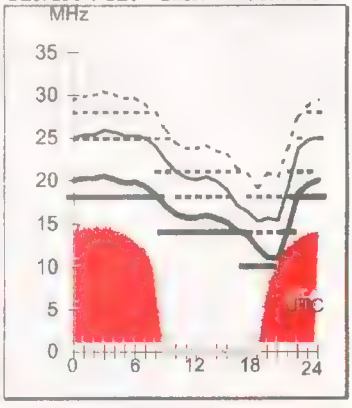
Brisbane-Honolulu 49
Second 3F5-11 3I Short 7569 km



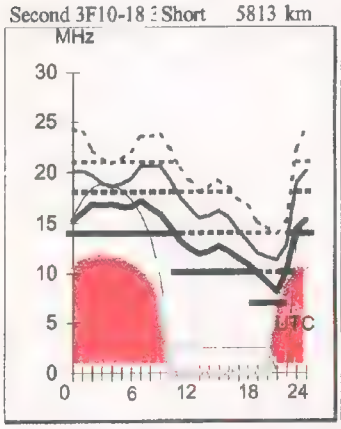
Canberra-New York 68
First F 0-5 Short 16217 km



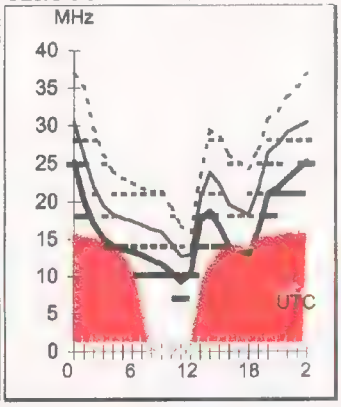
Darwin-Auckland 130
First 2F5-9 2E0 Short 5136 km



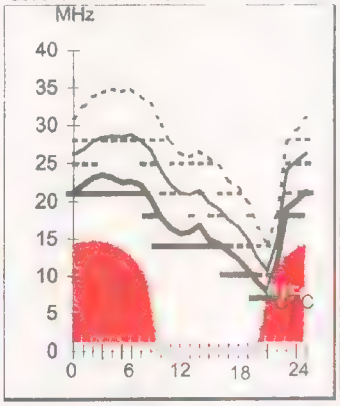
Adelaide-Manila 338
Second 3F10-18 2 Short 5813 km



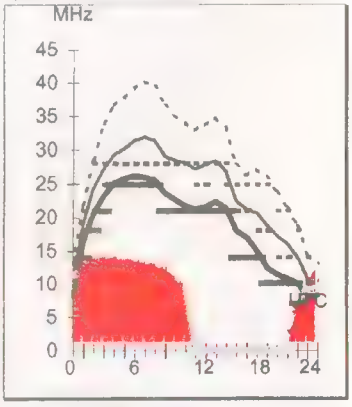
Brisbane-Miami 79
First F 0-5 Short 14761 km



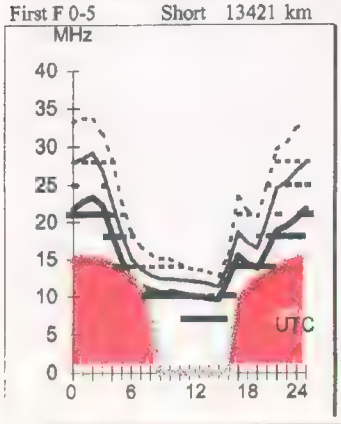
Canberra-Tokyo 352
Second 3F4-9 3E(Short 7948 km



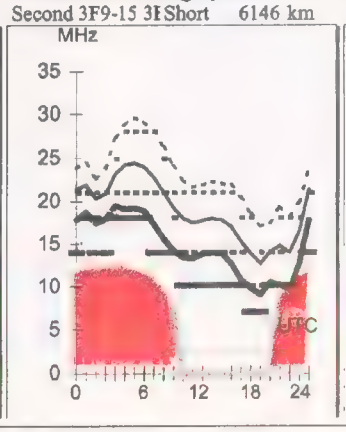
Darwin-New Delhi 309
Second 3F5-12 3I Short 7345 km



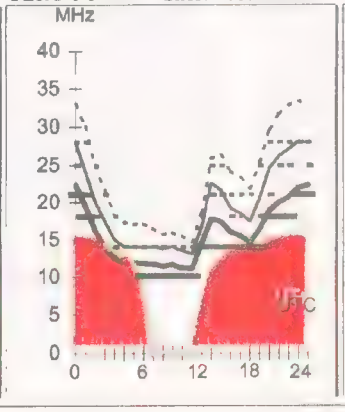
Adelaide-Vancouver 49
First F 0-5 Short 13421 km



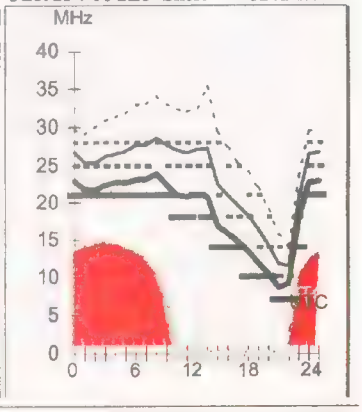
Brisbane-Singapore 293
Second 3F9-15 3I Short 6146 km



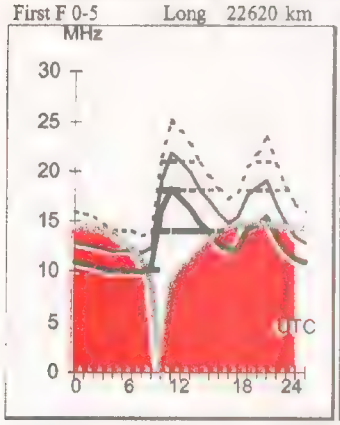
Canberra-Washingtor 70
First F 0-5 Short 15938 km



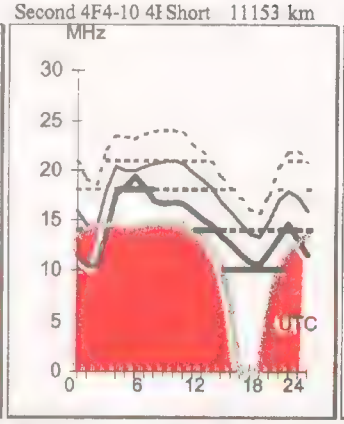
Darwin-Osaka 5
First 2F4-10 2E0 Short 5262 km



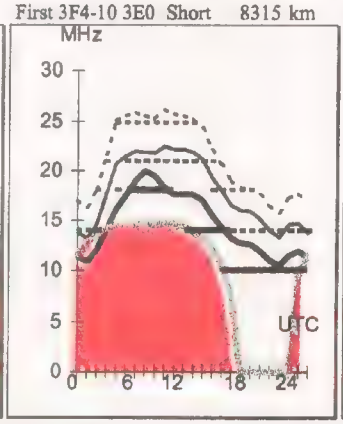
Hobart-London 123
First F 0-5 Long 22620 km



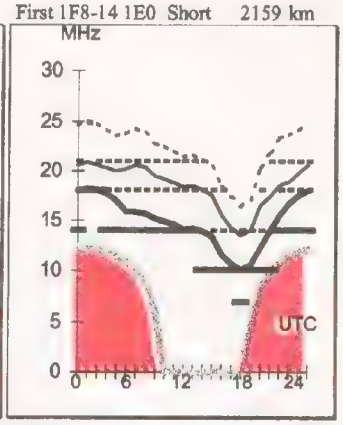
Melbourne-Lusaka 241
Second 4F4-10 4I Short 11153 km



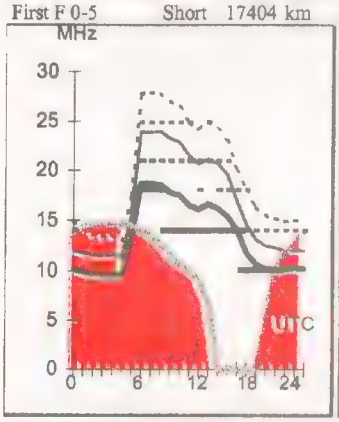
Perth-Johannesburg 248
First 3F4-10 3E0 Short 8315 km



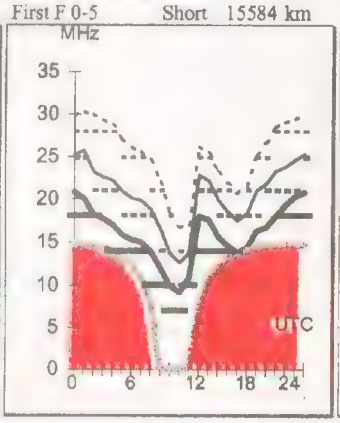
Sydney-Auckland 106
First 1F8-14 1E0 Short 2159 km



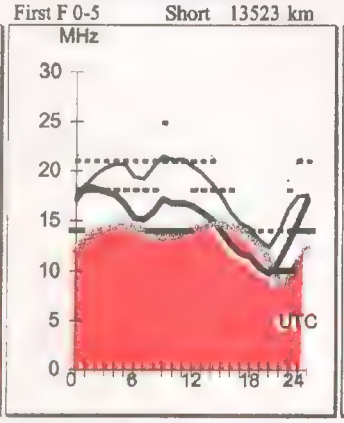
Hobart-London 303
First F 0-5 Short 17404 km



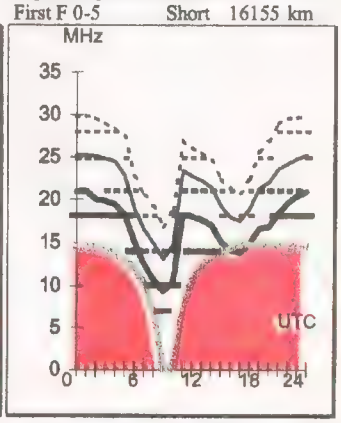
Melbourne-Miami 94
First F 0-5 Short 15584 km



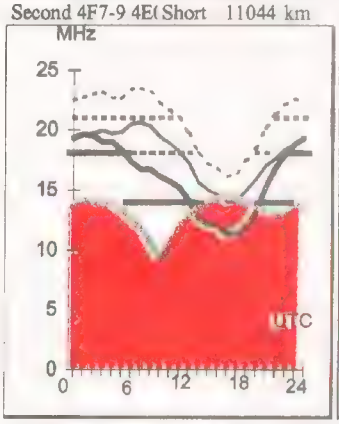
Perth-Rio de Janeiro 203
First F 0-5 Short 13523 km



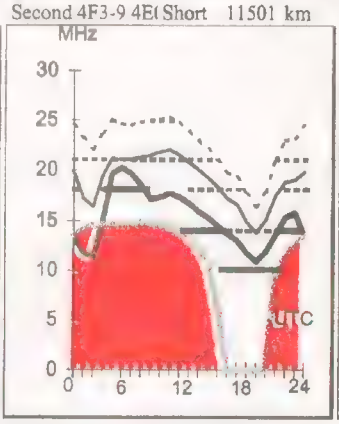
Sydney-Barbados 199
First F 0-5 Short 16155 km



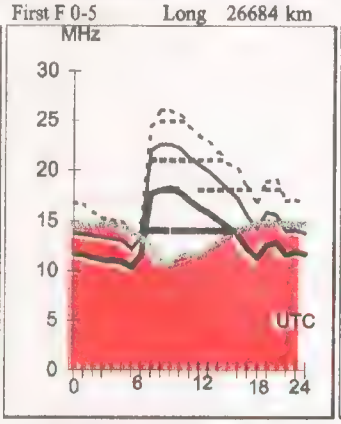
Hobart-Montevideo 161
Second 4F7-9 4E0 Short 11044 km



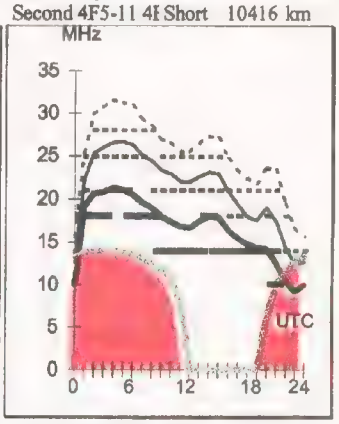
Melbourne-Nairobi 258
Second 4F3-9 4E0 Short 11501 km



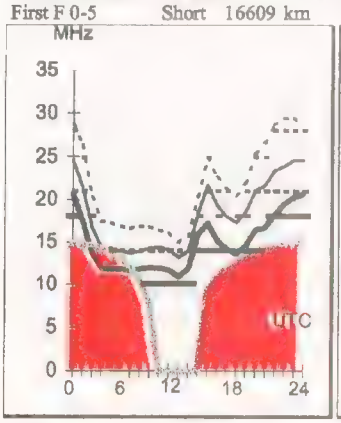
Perth-Rome 123
First F 0-5 Long 26684 km



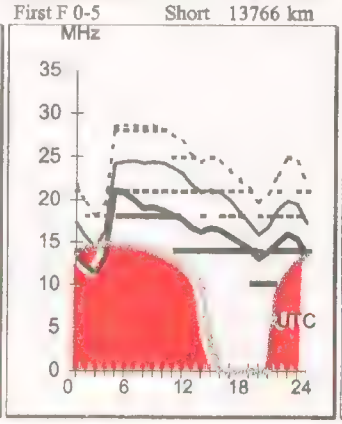
Sydney-New Delhi 302
Second 4F5-11 4I Short 10416 km



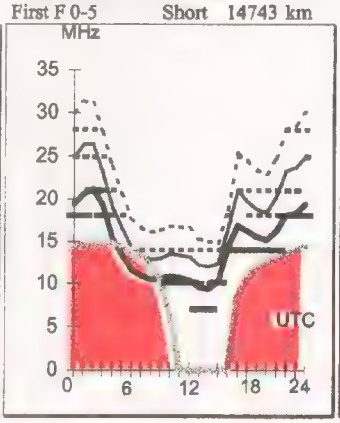
Hobart-New York 80
First F 0-5 Short 16609 km



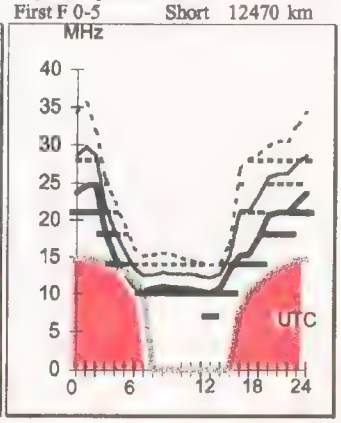
Melbourne-Tel Aviv 267
First F 0-5 Short 13766 km



Perth-San Francisco 66
First F 0-5 Short 14743 km



Sydney-Seattle 47
First F 0-5 Short 12470 km



VHF - UHF.. AN EXPANDING WORLD

David K Minchin VK5KK
Postal: 10 Harvey Cres, Salisbury Heights, SA, 5109. ***Phone:*** 0403 368 066 AH ONLY
E-mail: vk5kk@ozemail.com.au (note new e-mail address). ***Web page:*** http://members.ozemail.com.au/~tecknolt
All times are in UTC.

Advanced Refractive Effects Prediction System

Leigh VK2LRR circulated this information a few weeks ago regarding AREPS software. It has created great interest so is re-printed (in part) here for those who would like to try the Ducting Report System.

Leigh reports .. AREPS uses Upper Level Atmospheric Soundings Data from various Meteorological stations throughout Australia and other parts of the world, entered into a program called AREPS to produce a "Propagation Summary" of Atmospheric conditions that could effect the Normal propagation of radio waves, generally at approx 100MHz and above.

Location of the Upper Level Atmospheric Soundings Data

You may have seen Weather Station people sending up Weather balloons at some stage? These measure the Atmosphere from the ground up for certain parameters. What we are concerned with is obtaining data from the ground level upwards to 4000 meters, consisting of - Pressure (Hpa), Height (m), Air Temperature (deg C) and Relative Humidity (RH%). These readings can be found at http://weather.uwyo.edu/upperair/sounding.html

What you need to do at this page is to select from the top - South Pacific (Region), Text List (Type of plot), and then the date and time you require. Go to the map and select whatever Station you require. The info will come up in a new screen. Click on file and save as, then save to the file or folder you will use to obtain the data later to enter into the program.

The AREPS or Advanced Refractive Effects Prediction System program

Used and produced by the U.S Military to predict the propagation effects in relation to their voice and radar signals into the gigahertz range. It can be found at http://sunspot.spawar.navy.mil/543/software/ Click on the obtain program link icon, it then takes you to a page where it asks you for some of your details. Go down towards the bottom and there is about 13 separate files all about 1.3 Mb. Down load all of them, after its downloaded you just click on the first Zip file and it will take you through the installation.

Once you have downloaded/installed AREPS and all appears to be OK, go to the upper level soundings page. Select the correct options for your area. The map shows the area you have chosen, click on a station, the data will appear in a separate screen. Many stations may not give you a reading, particularly at 12z. When one has sounding info, follow the process explained (Click on file and save as, then save to the file or folder you will use to obtain the data later to enter into the program) and save the data. Once you have the data saved you can disconnect if you like.

Open up the AREPS program from your start menu. Click on the large Create A New Environment button. Expand the new page to full screen, which is the AREPS Environment program. Click on the large Custom Columns button. Expand that new screen. You should now have Custom Columns Import open. Find near the lower left side "Station Elevation" Right click Station elevation and change to measurement option to Meters. Then go directly across and find Station Type and click Land Fixed.

Go to the top buttons and click Open File.

Search through your files until you find the Sounding data you previously saved. When you find this, open the folder and click the explorer file of the saved data not the associated folder. Click open.

The file data then displays in the Custom Columns Import screen. Highlight everything immediately above the actual sounding data upwards (to top of screen) and delete. Move all the data up to the top of the screen. Click down until you find a Height reading (2nd column) first in the 4000m zone. From the left, highlight everything below that reading (not including the first 4000m reading) and delete it, after noting the stations height.

Enter the Station Elevation in the Profile Options section below the data screen. Make sure the drop down list just above that displays" M-unit profile from PTH" Click on the Parse Data button. A data sheet is arranged. In the columns mentioned next, right click on that corresponding label to give that column an information title. Column A - Pressure Hpa, Column B - Height M, Column C - Air Temp TA Deg C, Column E - Humidity RH %, Forget about the rest of the columns. Click do task. It should come up in the Legend and say Profile Is OK. Click the upper tab saying View Refractive Summary. And there you should have it!!!

Click across to see the graphs properly. You can then save the data by clicking upper save button.

Once you have saved the calculated profile, you can go back to the first AREPS page. Click the large Propagation Condition Summary button. Click the Environmental file you wish to open and press open

Up will come the Propagation Condition Summary. Expand the page. To the left you will see a summary explaining whether there will be Extended, Reduced or Normal conditions and at what heights etc.

To the right you can see the graphs.

If anyone has any questions or are stuck on an operation, just send an email and I will try and help. I hope the AREPS system can help all Amateurs, I have found it quite accurate, but like anything it's only as accurate as the inputted data applied to it. ...Leigh Rainbird VK2LRR

144 MHz and above

John Martin, VK3KWA, reports ... The 70 cm national Digital Modes record of 586.4 km (VK3FMD to VK7MO/7) was superseded by a contact made half an hour later on the same day: VK3AXH/3 to VK7MO/7, 02/11/2002, 649.1 km. The 2 metre national Mobile record has been broken after 16 years: VK3KAI/m to VK6AS, 20/12/2002, 2274.4 km. There is also a new national 10 GHz Digital Modes record: VK3TLW/3 to VK3WRE/3, 28/12/2002, 114.2 km. Updated record lists will be uploaded to the WIA web pages shortly ... John VK3KWA

Ron VK3AFW reports .. Bill, VK6AS, worked 33 stations on 20/12/2002 on 2 m and had notched up 16 QSO's by the time I worked him on 21/12/2002 at 1051. His signal had been building and when we worked he was 5x8. Some 40 minutes later he was down to 5x4. Nil this morning, and Colin, VK5DK, reported no sign of the Esperance beacon in Mt Gambier.

Ian VK1BG was audible here on 2 m after 9:00 this morning (21/12/2002) for a good half hour at 5x2 with some regular fading ... Ron, VK3AFW

Microwave News:

New 5.7 GHz ATV National Record

Ben VK5RD reports ... On the morning of Tuesday the 5th of November, 2003, VK5BQ transmitted his maiden 5 GHz ATV signal to Maitland, VK5AO, located at Banksia Park the distance being approx 80 km. Considering that the receiving set up at VK5AO consisted of only a 5 GHz chaparral feed at 30 feet to a converter and satellite receiver the results were most encouraging with pictures varying from between P1 and P5 with the occasional loss of signal completely. Since the initial test the experiment has been repeated a number of times with great success.

Spurred on by these results it was decided to make an attempt on the record in late November. Before an attempt was made however equipment at both ends of the link needed to be tested to ensure reliability and satisfactory operation. To this end accompanied by Graham VK5JD I travelled to Stansbury where tests transmissions were exchanged with VK5BQ over a distance of some 3km.

The first attempt at the record was on Monday 25/11/2002. Alas Murphy moved in, the weather turned hostile becoming worse by the minute as we drove to the site from which we intended to try for the record. Upon reaching the site the wx went from bad to very bad. It bucketed down making any attempt impossible.

On Thursday the 28th, undaunted by previous events, we made a second, successful, attempt to establish a new 5.7 GHz two way national ATV record, between Barry VK5BQ and myself Ben VK5RD at 0210Z. The distance involved was 111 km from a telecom site some 600 metres above sea level located approx 5 km ESE of Williamstown toVK5BQ's QTH 20 metres above sea level located 3 km south of the township of Stansbury on Yorke Peninsula. Signals both ways were P5 most of the time with the occasional fade with the sound being noise free 100% of the time. From what we observed if a site could be found having similar height the distance could well have extended beyond 150-180 km

Transmitting and receiving equipment used at both ends of the link were similar except for the size of dishes and feed types used. The transmitters consisted of an FM ATV 1150 MHz composite video and audio transmitter to a 5 GHz multiplier, which drove an RF microwave amplifier to 5watts output. The sound sub carrier used was 6.5 MHz. The receiver consisted of a 5 GHz GASFet converter to an analogue satellite receiver and monitor. The IF was in the region of 1 GHz.

VK5BQ's antennae was a home made 1.2 m mesh dish, utilizing a chaparral feed exhibiting a gain of approx 35 dbi @ 5.8 GHz. VK5RD antennae was a 600 mm solid dish utilizing a tapered waveguide dipole and reflector feed, with a gain of approx 29 dbi @ 5.8 GHz. For those who may be interested both dishes were prime focus types with an f/d ratio of about 0.375.

My received signal was relayed by VK5BQ back to Adelaide on 1250 MHz FM TV for interested viewers making a round trip of approx 185 km. This now only leaves the 3 GHz band unconquered and breaking the 1250 and 2.4 GHz records, which are only some 6 to 10 km, further than the site we used for the 5 GHz record. Maybe next year!

Barry and I would like to thank Graham VK5JD for his support in carting the gear around, locating a suitable site and for the filming of the event. We would also like to thank Mark VK5EME for supplying many of the parts and kits from which our stations were constructed. Also thanks to Steve VK5SFA for the loan of his portable generator and 12-volt monitor ... Ben VK5RD

2.4 & 5.7 GHz unlicensed data links

In December 2002, I reported on the 72 mile (118 km) link established in the US using 801.11 2.4 GHz WAN equipment. This has stirred up a fair bit of interest!

One group in Australia (in Adelaide) have already established a number of 2.4 GHz links, for more information go to http://www.air-stream.org/. The VK5 packet group (SAPUG) are looking at working with "Airstream" as they seem to have set to work on a number of things we have only been talking about. The potential of gaining some new "Amateurs" is real while providing a crossover with another interest group.

The Future of 420 - 450 MHz: Part two

This segment in the December 2002 issue drew a reasonable amount of comment. The dropping of ATV from the 70 cm segment was viewed as a backward step but it is agreed that it was probably about time that VSB (6 MHz BW) was implemented more universally rather DSB (+12 MHz BW). Let's face it, if we loose part of the band, there will be no choice!

Peter Cussins, VK3BFG reports ... we should plan and argue on the basis of at least one VSB channel (7 MHz) in the segment. ATV is one of the few amateur activities left where people actually have to build a substantial amount of their own equipment and is also hallmarked by the challenge of optimised

performance required in all aspects of transmission and reception.

As an example of homebrew activity, the Moorabbin Radio Club has an ATV Group operating and members have built and tested antennas for the reception of VK3RTV. The next step for them will be to build transmitters and antennas for the input frequency of 1250 MHz.

Note the accent on building and experimenting!!!

VK3RTV operates in Melbourne with an output on 444.25 MHz VSB. At the request of ACA it has moved from 579.25 to 576.25 and then subsequently to its current output frequency. Due to the geography of Melbourne with its extremely wide spread suburbs, VK3RTV is pivotal to ATV activity in Australia's second largest city.

With the advent of continuous tuners in modern television sets, amateur activity has been brought into the lounge rooms of non-amateur (SWL's). We all agree that amateur radio needs all the PR it can muster. This service is raising interest and awareness of amateur activities and ATV operators in Melbourne are fielding enquiries as a result. .. Peter VK3BFG

From ZL, Jamie ZL2NN comments ... Your comment in "VHF-UHF An Expanding World" in the Dec 2002 issue of AR has prompted me to briefly bring you up to date on the ZL situation regarding the 432 MHz band. The ZL amateurs lost the 420-430 MHz part of the band some 30 years ago to a 'country phone' system proposed by our Telco at that time. The main amateurs disadvantaged at that time were the ATV users but they were happy to receive channel 39, 614-622 MHz as a replacement for ATV repeater outputs.

In 2002, we lost 440 to 449.750 MHz. Note that the ATV users are still catered for with a VSB ATV channel at 431.250/ 436.750 MHz. ... Jamie ZL2NN.

Weak Signal Pioneer dies

Roger, VK2ZRH reports ... Grote Reber, ex-W9GFZ, is reported to have died on Friday last, 20 December 2002, at Ouse in Tasmania. He would have turned 91 on Sunday 22 December.

Reber is credited with having established the science of radio astronomy in the 1930s, a subject he pursued all his working life. Reber was inspired to investigate the radio signals from outer space as a young engineer and radio amateur, having learned of the work of AT&T engineer Karl Jansky. Jansky set out to investigate noise sources interfering with long distance telephone circuits and found HF noise emanating from space.

In 1937, Grote Reber built a parabolic dish of 9m diameter and built receivers to detect the weak signals from the cosmos. In 1939 he published the first "radio map" of the sky at VHF.

Subsequently, he produced sky noise maps for a variety of frequency bands. In the 1960s he became interested in recording sky noise at frequencies below the medium wave broadcast band. Realising he needed to view the sky through a "hole" in the ionosphere, he moved to Tasmania to continue his privately funded work. At that geomagnetic latitude the "southern ionospheric anomaly" - a region of very low ionisation - allows reception of sky noise. He constructed a huge wire array antenna and a TRF receiver, with which he recorded sky noise data in the 100s of kHz range.

Reber received a number of prestigious awards over his long and fruitful life. His papers are held in the US's National Radio Astronomy Observatory at Greenbank, West Virginia. In the early 1980s I was privileged to interview him during a day spent on his property in central Tasmania ... Roger Harrison VK2ZRH

In closing

Happy New Year! I'll leave you with this thought... "Everyone is a damn fool for at least 5 minutes every day. Wisdom consists in not exceeding the limit!"

73s David VK5KK/P3

ar

Over to you

Ron Bertrand VK2DQ Review

I recently completed and passed an AOCP theory course with Ron Bertrand, and must say that Ron's course and teaching methods are first class. Sure, some of the CD material is done on the fly as stated in the review, but this is what makes the course so enjoyable.

I personally detest it when an instructor teaches from a textbook verbatim. Ron teaches from knowledge, experience, in an informal relaxed manner and the course material is not as heavy going as some texts I have seen. Even the texts provided by the WIA and Swainstons are harder to follow than Ron's material.

Further, how many teachers are contactable once the class is over if a student has a query? Not many, I will wager.

Ron and his team of online facilitators are always contactable by telephone, email or via the online discussion group. Answers are prompt and succinct with suggestions offered from many if posted in the discussion group.

Surely a man who has been teaching (N) AOCP theory for 20 years with The Gladesville ARC and now with the Gold Coast ARC as well as online, must be doing something right, particularly with a student pass rate as high as his.

Personally I think the individuals who wrote the review in AR are suffering from the either jealousy or the tall poppy syndrome. I challenge any other organisation to match Ron' efforts and those of his team of online facilitators, and better them. Let alone do it for free as they do.

It is often discussed that Amateur Radio is a dying hobby, and what can we do to improve its image. I believe Ron has hit on a winner. He took an old hobby to the people, and made it publicly accessible "FOR FREE".

Please, we should be encouraging the efforts of people such as Ron and his team not knocking them down.

We continually have to ask each other *to coin a phrase.* "What have YOU done for Amateur Radio today?"

Adam Jaroszuk VK4LAJ
vk4laj@qsl.net

Dinosaurs Dreaming

An old dream has become reality for me: I've become an active licenced radio amateur. Let me tell you, though, about the veritable obstacle course I had to run, thrown up by . . . . . the WIA.

How does one become a licenced amateur these days? I did a Google search on the Internet and soon found the WIA websites. I thought I had found my answers. If fact I had found my first hurdle.

The advice on VK2's website was for me to go to "a local radio club near me". This club would be running radio courses and should have addresses of examiners. Living in Berry, NSW that wasn't so easy, there is no Shoalhaven Radio Club (I later found there used to be one but it died).

The closest radio clubs mentioned on the website were the Illawarra (one hour's drive north) and the Mid-South Coast one (1 hour's drive south). VK2's hotlink to the Illawarra website was dead. It lead nowhere. The telephone number given for the Mid-South Coast club didn't answer for a few days. Then I got a fairly upset female who said "they" were no longer involved. I did manage to extract a different phone number.

Eventually I managed to get on to some committee members of both the Illawarra and Mid-South Coast clubs. They were most friendly and helpful but had no idea whatsoever about courses or exams, couldn't give me any hints. *Lesson #1: don't believe the website.*

Meanwhile I had stumbled across Ron Bertrand's on-line Radio and Electronics School, a highly organised mob that soon had me well prepared for my first exams. Now to find out where and how I could do those exams.

Plan B consisted of phoning the VK2 office. After some misses (the office isn't often attended) I eventually got through. The person at the switchboard was very helpful. I learnt that there were simply no examiners south of Sydney, my only option was to come to Wigram Street, Parramatta, where exams were held every six weeks.

So, after some three weeks of frustration I could now plan ahead. In fact I was so elated I applied for WIA membership.

In May 2002 I did my first exams: Regs. and Novice Theory. The application form said that it could take "up to 30 days" to get the result. In my case it took 46 days before I heard I had passed. *Lesson #2: Don't believe the exam application form.*

Meanwhile I had started pursuing my morse and AOCP theory and booked for the exams scheduled for late July. Then came another setback: a few weeks before the exam VK2 left a message on my answering machine to tell me the exam date had been deferred by one week, due to "conflicting other uses of the building". *Lesson #3: exams have a lower priority than club activities.*

As it turned out the AOCP exam was uneventful. Not so the morse exam. The invigilator was clearly unfamiliar with the equipment and it took a while before I was comfortably settled, ready to start copying. At that very moment someone walked into the office and wanted to buy some morse training tapes. Immediately the invigilator dropped everything in order to attend to this cash sale. Not so easy on a Sunday because everything was locked away. First came the search for the key to the cash register, then the cash register had to be fired up, the tapes had to be found, the whole charade took about ten minutes, by which time my concentration had completely gone. *Lesson #3: during exams a $12.- casual cash transaction is more important than the $57.- exam.*

The same invigilator also administered the morse sending test. He had great problems first getting the tape into the recorder and then to get the thing to record. Eventually I had keyed the exam test. Having become suspicious by then, I suggested we quickly listen to make sure my efforts had actually been recorded. Sure enough the tape was silent.... the invigilator had forgotten to plug in the microphone. I had to do the whole rigmarole again. *Lesson #4: The WIA Exam Service doesn't care about invigilator training.*

Eventually I became the proud owner of my certificates and an Intermediate Licence. Proudly I emailed the VK2 office with my licence and callsign details and asked them to update their records. I also asked them whether, being now a licenced amateur, this meant I would be upgraded from Associate to Ordinary member. 6 Weeks later I still hadn't received any response, in spite of a reminder email I had sent. *Lesson #5: VK2WIA is not interested in new voting members.*

So here I am, an active amateur keenly working VHF, HF, IRLP and Packet. I have learnt some important lessons in the meantime. Amateur radio is a very worthwhile hobby, well worth keeping alive. More so because in times of real emergency HF communications might be the only ones still working.

Whether the WIA is worth keeping alive is another matter. Articles in recent AR Magazine issues contain pious phrases about how to attract new members, making exams easier to pass, etc. My advice: judge the WIA by its deeds, not by its words. In reality the WIA seems to have become a group of dinosaurs dreaming. They just do not wish their dreams of the good old days to be disturbed.

Amateur radio can survive but it needs an effective, pro-active organisation relevant to the needs and wishes of 21st century radio amateurs. Whether the WIA could ever be such an organisation I very much doubt.

Let us hope some more relevant organisation might spring up from somewhere before it is too late (some amateurs might even be working towards this). Meanwhile: dream on WIA .... dream on!

Fred Backer VK2JFB
email: fbacker@shoal.net.au

Views expressed in the letters and opinion columns are those of the authors and do not necessarily prepresent the policy of the WIA.

Some of the letters may be shortened to allow more letters to be published

Hamads

WANTED ACT

• **Service Manual for Yaesu FT-209RH** or instructions how to dismantle frame, and replace lithium memory battery. Peter VK1CPK QTHR Phone 02 6231 1790 FAX 02 6296 5712.

FOR SALE NSW

• Radiotelegraph and Radiotelephone Codes, Prowords and Abbreviations 3rd Edition (236pages), 610 gm, 1.5 lbs, now available. Probably the World's best compilation of this info now available. Q,X,Z Codes, 142 Phonetics, 24 Morse, 8 Needle codes. Myer, Phillips, 10, 11, 12, 13 and other codes. Much other info, abbreviations, procedures and methods. AU$25 + P&P. (in Australia $7.50) Internet: http://www.sarc.org.au then hit "Code Book ...." John Alcorn VK2JWA, QTHR, Phone +61 02 6621 5217 e-mail vk2jwa@sarc.org.au

• **Kenwood TL-922 linear amplifier** $1700. Full details at www.users.bigpond.com/markweb/. Mark Webster QTHR, Phone/FAX 02 9489 4661 or 02 4997 3173.

• **Kenwood TS-520S transceiver** s/n-740625, fair condition. **MC-35S mic**, manual. Requires new finals $200. Adrian VK2DZF QTHR Phone 02 4739 3747.

WANTED NSW

• **Osker Block SWR-200 meter, Yaesu YP-150 Dummy load wattmeter**. Adrian VK2DZF QTHR, Phone 02 4739 3747.

• **Yaesu FT-1000D**, in good condition and reasonably priced. Please contact Geoff VK2CNN. Phone 02 9789 3086 or email vk2cnn@qsl.net.

• **Drake SSR-1** general coverage receiver or similar. Reply Peter VK2DBI QTHR Phone 02 6367 5095.

• **Kenwood TS-950SDX** must be in good condition. E-mail vk2uw@iprimus.com.au or Phone 0413 114 953.

• **SP-950 external speaker** to suit Kenwood TS-950SD or SDX. E-mail vk2uw@iprimus.com.au or Phone 0413 114 953

• **Circuit diagram for LABTECH 3502 20 MHz dual beam oscilloscope**, good money for the right one! Thanks. Nev, VK2QF. Please email vk2qf@winsoft.net.au or Phone 0418 611 119

• **FT-200 with power supply** in good working order. Ben VK2AJE Phone 02 4457 3220.

FOR SALE VIC

• **Icom IC-HM7 dynamic mic** with built-in pre-amp as new in box $35. VK3GMM Phone/fax 03 5985 2671

• **Nally Tower 37.7m** CDE Ham IV rotor system and triband junior antenna, buyer to arrange dismantling of antenna $1000. **Yaesu FT-101Z** tcvr $350. **Daiwa 448 Powermeter** $100 or best offer. Norm VK3JLY 03 9578 3053.

• **Alinco DX-70TH** HF + 6 m tcvr, as new $975. **Packet set** 486 PC, modem, **Yaesu**

• CPU-2500R 2 m FM tcvr $150. **BC-221** freq. meter $60. **DX-200** gen coverage

• Rx 0.15-30 m $60. **Palomar 3-30 m amp** SS $10. **Power supply, 600-300V dc** 250 mA $10. **Emtron EP-200 SWR/P meter** $60. Alan VK3AMT QTHR Phone 03 9789 9106.

• **Bakelite radio STC141** restored EC $200 **Heil HC5** mike insert unused $35 **Heil HMP** mike preamp for Icom $40 **AWA 25M** on 52.525 $30. **Books** ARRL "Sat. Experimenters Handbook" & Heathkit – "Guide to AR products", $20 ea. More details http://users.netcon.net.au/~lcval1/ Damien VK3RX Phone 03 5427 3121 vk3rx@wia.org.au

WANTED VIC

• **BWD 500B oscilloscope circuit** wanted or handbook copy to enable reconditioning before donation to some penurious amateur or cause. Photocopy costs met willingly. Reg VK3CAZ QTHR Phone 03 5341 7585

• **RF deck for National FRR-59A receiver**. Please help restore this classic. Its missing half must be somewhere! Morris Odell VK3DOC QTHR Phone 03 9824 8988, E-mail morriso@vifp.monash.edu.au

• **Lafayette HE-30 manual** and/or circuit. **Crammond CTR-25 manual** and/or circuit. Kevin VK3CKL QTHR Phone 03 9792 9503.

• Help for **Wireless Set No 11 project**. Both the high and low power, power supply boxes and/or plugs to suit these. Clem VK3CYD Phone 03 5126 2064 clem@dcsi.net.au

FOR SALE QLD

• **Printed Circuit Board for JAS-1 PSK Modem**. New ex designer James Miller G3RUH 160 mm x 100 mm double-sided, holes plated through, legended, including full instructions. Suitable for terrestrial and satellite 1200 bps PSK. Email for specs $30 firm, post free in Australia. Geoff VK4GWC QTHR Phone 07 5445 9986. Email geoffcom@powerup.com.au

• **Icom 2 metre transceiver IC-2SAT** SN02397 hand held manual, original box, plus external battery holder $140. Bernie VK4OZ QTHR phone 07 5532 4078

• **Yaesu FT-101E** original with manual, hand mic, plugs $250. **Yaesu digital VFO FV-707DM** with manual $75. Paul VK4DJ 07 4775 7998, 0401 860 769

WANTED QLD

• **WWII 3BZ Tx and 3BZ Rx**, also ex-army **type 128** manpack 1940s/1950s with 6 volt vibrator power supply as well as hand generator for this set. Ray VK4FH, PO Box 5263, Daisy Hill 4128, Phone 07 3299 3819, fax 07 3299 3821.

• **Yaesu SPdx400/SP400 External Speaker** or similar. **FVdx400 external VFO, FLdx2000/FL2000B Linear Amplifier. YD488 Base Microphone.** Wanted to complete 1960s Ham Radio Station. Will consider all offers in any condition, and my thanks in advance. Phone Sandy VK4II, ph 07 3343 1961

FOR SALE SA

• **Tentec RX-350**, latest model, 6 months old only. Cost $3500, sell $1500 due to dementia - requires move to a home with no antennas. Phone 08 8255 1618.

• **Vibroplex Vibrokeyer Deluxe**, SN 389009 $150; **Vibroplex Double Key Deluxe**, SN 100061 $300; **NYE Master Key**, Model 330-001 $100; **Ten-Tec Electronic Keyer**, Model KR-5A $100; Matching pair of **German miniature keys**: 1 single action, 1 double action, brass handmade - rare $200; **Linear amplifier, 3-30MHz**, 3CX 3000 A7, 3 phase. Harro VK5HK Phone 08 8323 9622, fax 08 8323 9659

About hamads....

- Hamads may be submitted by ***email*** or on the ***form on the reverse of your current Amateur Radio address flysheet***. Please print carefully, especially where case or numerals are critical.
- Please submit separate forms for For Sale and Wanted items, and be sure to include your name, address and telephone number (including STD code) if you do not use the flysheet.
- Eight lines (forty words) per issue free to all WIA members, ninth and tenth lines for name and address. Commercial rates apply for non-members.
- Deceased estates Hamads will be published in full, even if the ad is not fully radio equipment.
- WIA policy recommends that the serial number of all equipment for sale should be included.
- QTHR means the address is correct in the current WIA Call Book.
- Ordinary Hamads from members who are deemed to be in general electronics retail and wholesale distributive trades should be certified as referring only to private articles not being re-sold for merchandising purposes.
- Commercial advertising (Trade Hamads) are pre-payable at $25.00 for four lines (twenty words), plus $2.25 per line (or part thereof), with a minimum charge of $25.00. Cheques are to be made out to: WIA Hamads.
- Copy should be typed or printed clearly, and be received by the deadlines shown on page 1 of each issue of Amateur Radio, at:

Email: *newsletters@ozemail.com.au* **Fax:** *03 9756 7031*

Postal: *Newsletters Unlimited, PO Box 431, Monbulk Vic 3793*

• **Shack clearance** of unwanted antennas, radio magazines, RF accessories, and other gear. Send SASE to Paul VK5MAP, PO Box 76, Peterborough SA 5455 for list. VK5MAP Paul QTHR.

WANTED SA

• Info about **old triband beam** believed to be a "Wilson". Need assembly and tuning dimensions. Each pair of 15/10 m traps are housed in a single can. Eddie VK5ZE, phone 08 8255 7586 QTHR

• **Kenwood MC-60A desk microphone.** Must be in perfect condition with eight pin plug. Photocopies of **pages 75-80 inclusive for Kenwood TS-440S** service manual. VK5MAP Paul QTHR, phone 08 8651 2398

FOR SALE TAS

• **Yaesu FT-920 HF-50MHz** brand new, with **Yaesu VO-100 monitor scope, Powertech MP3090** DC regulated power supply. **Microwave MMS2** advanced Morse trainer Morse/voice send/receive, plus SWR/power meter, earphones, Morse key, microphones; also new G5RV antenna with 40 ft telescopic guyed tower. All offers considered. Will split if necessary. Phone Peter VK7CV Phone 03 6330 1997, e-mail grumpygramp@bigpond.com.

MISCELLANEOUS

• The WIA QSL Collection (now Federal) requires QSLs. All types welcome, especially rare DX pictorial cards, special issue. Please contact the Hon Curator, Ken Matchett VK3TL, 4 Sunrise Hill Road, Montrose Vic 3765, tel. (03) 9728 5350

TRADE ADS

PSK-31, SSTV, RTTY SOUNDBOARD INTERFACES

Fully isolated, ready to plug in.
http://www.G3LIV.CO.UK,
johnny@melvin.com, G3LIV QTHR.

AMIDON FERROMAGNETIC CORES:

For all RF/electronic applications.

See our website for complete data on all cores including prices.

RJ & US Imports,
PO Box 431, Kiama NSW 2533.

A 3.5" PC disk containing all data is available for $5.00 incl. post.

www.catchnet.com.au/~rjandusimports

Agencies at: Active Electronics, Tas; Truscotts, Electronic World, Melbourne; TTS Systems, Tyabb; Tower Communications, Perth; Haven Electronics, Nowra.

HF, VHF, UHF ANTENNAS & ACCESSORIES

Alum towers, guys etc. Diamond VSWR/PWR meters. HD copper ant wire & insulators. TX tubes & pwr transistors. Quality coax cables & connectors. Free advice & catalogue.
ATN Antennas Ph 03 5492 2224 Fax 03 5492 2666, email atnant@ruralnet.net.au

ADVERTISERS INDEX

Com-an-tena.....24
Connektron.....37
G & C Communications.....29
Icom.....OBC
TTS.....8
Andrews.....16
WIA Call Book.....IFC

http://www.hamsearch.com
a not-for-profit site that is a search engine for hams

Amateur Radio

is cheaper if you are a member of the

Wireless Institute of Australia!

Please contact us at the
WIA - *Western Australian Division* - WIA
or see page 64

Why search for *Amateur Radio* Magazine on the news stands when you could receive a copy at your own home anywhere in Australia.

There are three grades of membership:

1. Full Member - with AR Magazine $71.00 per year
2. Pensioner or Student with AR Magazine $65.00 per year
3. Full member - without AR Magazine $39.00 per year

Bankcard, MasterCard or Visa

Application forms are available by post or from:
http://www.wia.org.au/vk6

Roy VK6XV on 08-9246-3642 or Christine VK6ZLZ on 08-9351-8873
Email: vk6@wia.org.au or vk6membership@wia.org.au
Post to WIA WA PO Box 10 West Perth WA 6872

How to submit material to *Amateur Radio*

Electronically:

Text: Microsoft Word, Text or RTF file, ***no graphics embedded.***

Diagrams: 300 dpi jpeg (preferred), tiff or pdf

Photos: 300 dpi jpeg, tiff or eps. Light coloured background, but beware of flash shadows. If submitting for cover, send 600 dpi jpeg, preferably portrait rather than landscape orientation.

Email to:
edarmag@chariot.net.au

Hard copy:

Text: Preferably typed or word processed.

Diagrams: Clear black lines and labelling, for either scanning or redrawing by Amateur Radio

Photos: Light coloured background, but beware of flash shadows. Remember red prints black. For cover photos portrait orientation is preferred over landscape.

Send to: The Editor, *Amateur Radio,*
34 Hawker Crescent,
Elizabeth East SA 5112

TRADERS
Advertise in AR
03 9756 7797

TRADE PRACTICES ACT
It is impossible for us to ensure that the advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore, advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are strictly complied with.

VICTORIAN CONSUMER AFFAIRS ACT
All advertisers are advised that advertisements containing only a PO Box number as the address cannot be accepted without the addition of the business address of the box-holder or seller of the goods.

Division Directory

The Amateur Radio Service exists for the purpose of self training, intercommunication and technical investigation. It is carried out by amateurs who are duly authorised people interested in radio technique solely with a personal aim and without pecuniary interest.

The Wireless Institute of Australia represents the interests of all radio amateurs throughout Australia. National representation is handled by the executive office under council direction. There is one councillor for each of the seven Divisions. This directory lists all the Divisional offices, broadcast schedules and subscription rates. All enquiries should be directed to your local Division.

VK1 Division Australian Capital Territory,
GPO Box 600, Canberra ACT 2601

President	Gilbert Hughes	VK1GH
Secretary	Peter Kloppenburg	VK1CPK
Treasurer	Linden S Orr	VK1LSO

VK2 Division New South Wales
109 Wigram St, Parramatta NSW
(PO Box 432, Harris Park, 2150)
(Office hours Tue., Thu., Fri., 1100 to 1400 hrs.)
Phone 02 9689 2417
Web: *http://www.wiansw.org.au*
Freecall 1800 817 644
e-mail: *vk2wi@ozemail.com.au*
Fax 02 9633 1525

President	Terry Davies	VK2KDK
Secretary	Owen Holmwood	VK2AEJ
Treasurer	Chris Minahan	VK2EJ

VK3 Division Victoria
40G Victory Boulevard Ashburton VIC 3147
(Office hours Tue 10.00 -2.30)
Phone 03 9885 9261
Web: *http://www.wiavic.org.au*
Fax 03 9885 9298
e-mail: *wiavic@wiavic.org.au*

President	Jim Linton	VK3PC
Secretary	John Brown	VK3JJB
Treasurer	Jim Baxter	VK3DBQ

VK4 Division Queensland
PO Box 199, Wavell Heights, Qld. 4012
Phone 07 3221 9377
e-mail: *office@wiaq.powerup.com.au*
Fax 07 3266 4929
Web: *http://www.wia.org.au/vk4*

President	Ewan McLeod	VK4ERM
Secretary	Bob Cumming	VK4YBN
Treasurer	Bill McDermott	VK4AZM

VK5 Division South Australia and Northern Territory
(GPO Box 1234 Adelaide SA 5001)
Phone 08 8294 2992
web:*http://www.sant.wia.org.au*
email: *peter.reichelt@bigpond.com*

President	Trevor Quick	VK5ATQ
Secretary	Peter Reichelt	VK5APR
Treasurer	Trevor Quick	VK5ATQ

VK6 Division Western Australia
PO Box 10 West Perth WA 6872
Phone 08 9351 8873
Web: *http://www.wia.org.au/vk6*
e-mail: *vk6@wia.org.au*

President	Neil Penfold	VK6NE
Secretary	Roy Watkins	VK6XV
Treasurer	Bruce Hedland-Thomas	VK6OO

VK7 Division Tasmania
PO Box 371 Hobart TAS 7001
Phone 03 6234 3553 (BH)
Web: *http://www.tased.edu.au/tasonline/vk7wia*
also through *http://www.wia.org.au/vk7*
email: *batesjw@netspace.net.au*

President	Mike Jenner	VK7FB
Secretary	John Bates	VK7RT
Treasurer	John Bates	VK7RT

Broadcast schedules

All frequencies MHz. All times are local.

VK1WI: 3.590 LSB, 146.950 FM each Thursday evening from 8.00pm local time. The broadcast text is available on packet, on Internet *aus.radio.amateur.misc* news group, and on the VK1 Home Page http://www.vk1.wia.ampr.org

Annual Membership Fees. Full $80.00 Pensioner or student $71.00. Without *Amateur Radio* $48.00

VK2WI transmits every Sunday at 1000 hrs and 1930 hrs on some or all of the following frequencies (MHz): 1.845, 3.595, 7.146, 10.125, 14.170, 18.120, 21.170, 24.950, 28.320, 29.170, 52.150, 52.525, 144.150, 147.000, 432.150, 438.525, 1273.500. Plus many country regions on 2m and 70cm repeaters. Highlights are included in VK2AWX Newcastle news Monday 1930hrs. on 3.593 , 10 metres and local repeaters. The text of the bulletins is available on the Divisional website and packet radio. Continuous slow morse transmissions are provided on 3.699 and 145.650. VK2RSY beacons on 10m, 6m, 2m, 70cm and 23cm. Packet on 144.850.

Annual Membership Fees. Full $80.00 Pensioner or student $63.00. Without *Amateur Radio* $50.00

VK3BWI broadcasts on the 1st Sunday of the month at 20.00hrs Primary frequencies, 3.615 DSB, 7.085 LSB, and FM(R)s VK3RML 146.700, VK3RMM 147.250, VK3RWG 147.225, and 70 cm FM(R)s VK3ROU 438.225, and VK3RMU 438.075. Major news under call VK3ZWI on Victorian packet BBS and WIA VIC Web Site.

Annual Membership Fees. Full $83.00 Pensioner or student $67.00. Without *Amateur Radio* $51.00

VK4WIA broadcasts on 1.825 MHz SSB, 3.605 MHz SSB, 7.118 MHz SSB, 10.135 MHz SSB, 14.342 MHz SSB, 21.175 MHz SSB, 28.400 MHz SSB, 29.660 MHz FM (rptr), 147.000 MHz, and 438.525 MHz (in the Brisbane region, and on regional VHF/UHF repeaters) at 0900 hrs K every Sunday morning. QNEWS is repeated Monday evenings, at 19.30 hrs K, on 3.605 MHz SSB and 147.000 MHz FM. On Sunday evenings, at 18.45 hrs K on 3.605SSB and 147.000 FM, a repeat of the previous week's edition of QNEWS is broadcast. Broadcast news in text form on packet is available under WIAQ@VKNET. QNEWS Text and real audio files available from the web site

Annual Membership Fees. Full $95.00 Pensioner or student $81.00. Without *Amateur Radio* $69.00

VK5WI: 1843 kHz AM, 3.550 MHz LSB, 7.095 AM, 14.175 USB, 28.470 USB, 53.100 FM, 147.000 FM Adelaide, 146.800 FM Mildura, 146.900 FM South East, 146.925 FM Central North, 438.475 FM Adelaide North, ATV Ch 35 579.250 Adelaide. (NT) 3.555 LSB, 7.065 LSB, 10.125 USB, 146.700 FM, 0900 hrs Sunday. The repeat of the broadcast occurs Monday Nights at 1930hrs on 3585kHz and 146.675 MHz FM. The broadcast is available in 'Realaudio' format from the website at www.sant.wia.org.au Broadcast Page area.

Annual Membership Fees. Full $88.00 Pensioner or student $73.00. Without *Amateur Radio* $58.00

VK6WIA: 146.700 FM(R) Perth at 0930hrs Sunday relayed on 1.865, 3.564, 7.075, 10.125, 14.116, 14.175, 21.185, 29.120 FM, 50.150 and 438.525 MHz, Country relays 3.582, 147.200 (R) Cataby, 147.350 (R) Busselton, 146.900 (R) Mt William (Bunbury).147.000 (R) Katanning and 147.250 (R) Mt Saddleback. Broadcast repeated on 146.700 at 1900 hrs Sunday relayed on 1.865, 3.564 and 438.525 MHz : country relays on 146.900,147.000, 147.200, 147.250 and 147.350 MHz..Also in "Real Audio" format from the VK6 WIA website

Annual Membership Fees. Full $71.00 Pensioner or student $65.00. Without *Amateur Radio* $39.00

VK7WI: 146.700 MHz FM (VK7RHT) at 0930 hrs Sunday relayed on 147.000 (VK7RAA), 146.725 (VK7RNE), 146.625 (VK7RMD), 3.570, 7.090, 14.130, 52.100, 144.150 (Hobart), repeated Tues 3.590 at 1930 hrs.

Annual Membership Fees. Full $90.00 Pensioner or student $77.00. Without *Amateur Radio* $57.00

VK8 Northern Territory is part of the VK5 Division and relays broadcasts from VK5 as shown, received on 14 or 28 MHz. The broadcast is downloaded via the Internet.

Lighthouse adventure

Bayside District Amateur Radio Society Inc. participated in the International Lighthouse/Lightship contact weekend on 17th-18th August 2002.

Our station VK4BAR was set up at Cleveland Point with the historic wooden unmanned light in the background. We were one of only four Queensland stations in the event. Our station operated from within the marquee belonging to our President Paddy VK4JPD. The marquee was erected by Paddy, Eddie VK4TJE, Victor VK4WST and Brian VK4BVH, shown in that order, from the left, on the photo. We erected a multi-band trap dipole antenna between the ladder of the laser beacon and a large tree to the southwest of it. The transceiver used was the TS450s at 100 watts. We powered the station with a solar panel and deep cycle battery loaned to us by Al Solar of Capalaba.

During the weekend our station was operated by all of the above plus Ken VK4KF.We were also visited by other members and the general public. The station was kept open during the night hours by Eddie and Brian, (spot the BBQ to the left of Paddy), during which time inquisitive visitors wanted to know what was taking place. All up we made 86 contacts throughout the world; including two marine mobiles, a yacht off Mackay and a cargo vessel off Townsviiie.

We're all anticipating the next Lighthouse Event in August 2003

Technical Winner

Godfrey Williams VK5BGW displays the Technical Award Certificate presented to him for his article *An Upper Sideband Receiver for the 20 metre band* published in Amateur Radio, April 2000

ICOM'S GREAT CHAMPIONS

NO FILTERS REQUIRED

IC-7400 (746 PRO)

Sharp & soft IF filter shape • 100W HF /6m /2m • Digital twin PBT • DSP • SSB / CW synchronous tuning • Built in antenna tuner • RTTY demod / decoder • Digital RF speech processor • Microphone equaliser.

NEW

IC-2720H The new dual band FM Transceiver

2M / 70CM • Remote head operation • Dual VFO with independent control for each band • 212 Memory channels • Wideband receiver • CTCSS & DTCS encode & decode • 9600 bps packet operation • Standard HM133 remote control microphone

IC-718 A compact HF all band transceiver.

A superior performer with simple, straightforward operation with keypad • Optional AF DSP capabilities, including noise reduction & auto notch function • It's versatile, compact & loaded with features.

IC-706MKIIG HF • VHF UHF

The amazing evolution of the legendary 706.

Now includes 70cm @ 20W and 50W on 2m
Standard feature dsp • Built in sub tone encoder & decoder
Tone scan • MosFET PA • You get base station performance and features in a mobile rig sized package.

IC-T90A A new 5W Triband handheld

NEW

VHF/UHF FM 2M, 6M, & 70CM
Wideband receive 495 KHz - 1 GHz
555 Alphanumeric memories • 13 Scan modes
DTCS & CTCSS encode & decode
DTMF encoder (10 memories)
Wide/narrow transmit capability.

ICOM
Clearly Ahead
2 YR WARRANTY

PH242_AM02

find your nearest ICOM dealer at
www.icom.net.au or (03) 9387 0666

Volume 71 Number 2 FEBRUARY 2003 Print Post Approved PP349181/00420